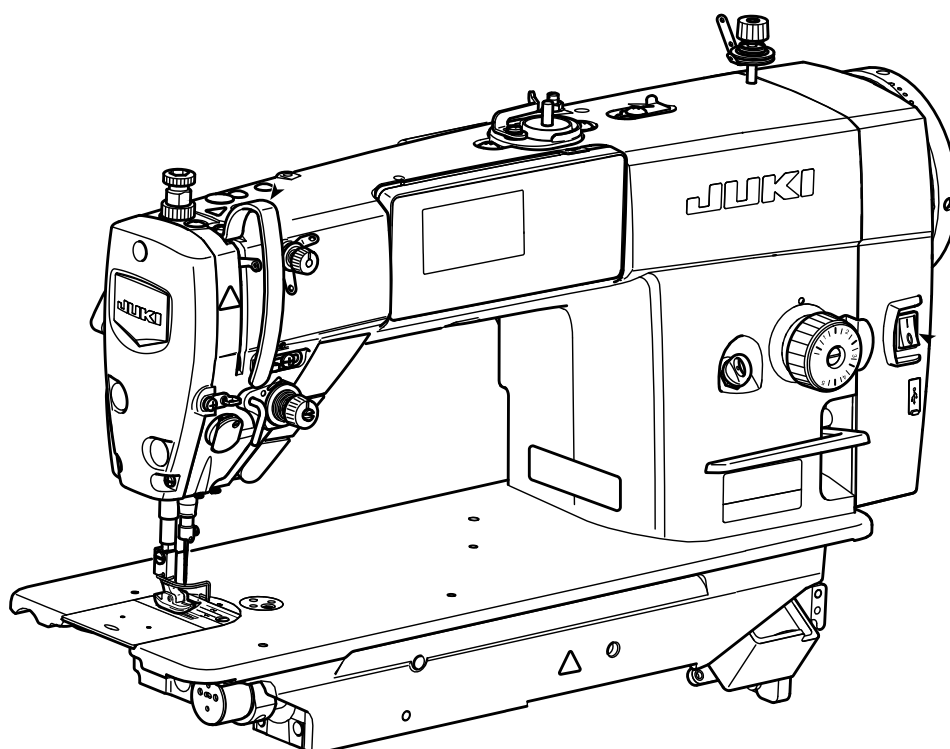


**JUKI®**

**Direct-drive, High-speed, Automatic Thread Trimmer**

**DDL-8000A**

# **ENGINEER'S MANUAL**



**40218604**  
**No. E440-00**

## **PREFACE**

This Engineer's Manual is written for the technical personnel who are responsible for the service and maintenance of the machine.

The Instruction Manual for these machines intended for the maintenance personnel and operators at an apparel factory contains operating instruction in detail. And this manual describes "Standard Adjustment", "Adjustment Procedures", "Results of Improper Adjustment", and other important information which are not covered in the Instruction Manual.

When carrying out the maintenance work on the sewing machine, be sure to refer also to the Instruction Manual and the Parts List. Further, refer to Engineer's Manual.

In addition, for the motor for the sewing machine with thread trimmer, refer to the separate Instruction Manual or This manual gives the "Standard Adjustment" on the former page under which the most basic adjustment value is described, and on the latter page "Results of Improper Adjustment" under which stitching errors and troubles arising from mechanical failures and "How to adjust" are described.

# TO ENSURE SAFE USE OF YOUR SEWING MACHINE

For the sewing machine, automatic machine and ancillary devices (hereinafter collectively referred to as "machine"), it is inevitable to conduct sewing work near moving parts of the machine. This means that there is always a possibility of unintentionally coming in contact with the moving parts. Operators who actually operate the machine and maintenance personnel who are involved in maintenance and repair of the machine are strongly recommended to carefully read to fully understand the following **Safety precautions** before using/maintaining the machine. The content of the **Safety precautions** includes items which are not contained in the specifications of your product.

The risk indications are classified into the following to help understand the meaning of the labels described in this service manual and the product. Be sure to fully understand the following description and strictly observe the instructions.

## (I) Explanation of risk levels

|  |                                                                                                                                                                                                                                                                  |
|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>DANGER :</b><br>This indication is given where there is an immediate danger of death or serious injury if the person in charge or any third party mishandles the machine or does not avoid the dangerous situation when operating or maintaining the machine. |
|  | <b>WARNING :</b><br>This indication is given where there is a potentiality for death or serious injury if the person in charge or any third party mishandles the machine or does not avoid the dangerous situation when operating or maintaining the machine.    |
|  | <b>CAUTION :</b><br>This indication is given where there is a danger of medium to minor injury if the person in charge or any third party mishandles the machine or does not avoid the dangerous situation when operating or maintaining the machine.            |
|  | Items requiring special attention                                                                                                                                                                                                                                |

## (II) Explanation of pictorial warning indications and warning labels

|                              |  |                                                                                   |                              |  |                                                                                |
|------------------------------|--|-----------------------------------------------------------------------------------|------------------------------|--|--------------------------------------------------------------------------------|
| Pictorial warning indication |  | There is a risk of injury if contacting a moving section.                         | Pictorial warning indication |  | Be aware that holding the sewing machine during operation can hurt your hands. |
|                              |  | There is a risk of electrical shock if contacting a high-voltage section.         |                              |  | There is a risk of entanglement in the belt resulting in injury.               |
|                              |  | There is a risk of a burn if contacting a high-temperature section.               |                              |  | There is a risk of injury if you touch the button carrier.                     |
|                              |  | Be aware that eye deficiency can be caused by looking directly at the laser beam. | Indication label             |  | The correct direction is indicated.                                            |
|                              |  | There is a risk of contact between your head and the sewing machine.              |                              |  | Connection of a earth cable is indicated.                                      |

|                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |  |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| Warning label                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |  |
|                               | <p>① • There is the possibility that slight to serious injury or death may be caused.<br/>• There is the possibility that injury may be caused by touching moving part.</p> <p>② • To perform sewing work with safety guard.<br/>• To perform sewing work with safety cover.<br/>• To perform sewing work with safety protection device.</p> <p>③ • Be sure to turn the power OFF before carrying out "machine-head threading," "needle changing," "bobbin changing" or "oiling and cleaning".</p> |  |  |
| Electrical-shock danger label |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |  |
|                               | <p><b>危険</b><br/>高電圧部分に触れて、大けがをすることがある。<br/>電源を切って、5分以上たってからカバーをはずすこと。</p> <p><b>DANGER</b><br/>Hazardous voltage will cause injury.<br/>Turn off main switch and unplug power cord and wait at least 5 minutes before opening this cover.</p>                                                                                                                                                                                                                                                     |  |  |

# **SAFETY PRECAUTIONS**

Accident means "to cause personal injury or death or damage to property."



## **DANGER**

1. When it is necessary to open the control box containing electrical parts, be sure to turn the power off and wait for five minutes or more before opening the cover in order to prevent accident leading to electrical shock.



## **CAUTION**

### **Basic precaution**

1. Be sure to read the engineer's manual and other explanatory documents supplied with accessories of the machine before using the machine. Carefully keep the engineer's manual at hand for quick reference.
2. The content of this section includes items which are not contained in the specifications of your product.
3. Be sure to wear safety goggles to protect against accident caused by needle breakage.
4. Those who use a heart pacer have to use the machine after consultation with a medical specialist.

### **Safety devices and warning labels**

1. Be sure to operate the machine after verifying that safety device(s) is correctly installed in place and works normally in order to prevent accident caused by lack of the device(s).
2. If any of the safety devices is removed, be sure to replace it and verify that it works normally in order to prevent accident that can result in personal injury or death.
3. Be sure to keep the warning labels adhered on the machine clearly visible in order to prevent accident that can result in personal injury or death. If any of the labels has stained or come unstuck, be sure to change it with a new one.

### **Application and modification**

1. Never use the machine for any application other than its intended one and in any manner other than that prescribed in the engineer's manual in order to prevent accident that can result in personal injury or death. JUKI assumes no responsibility for damages or personal injury or death resulting from the use of the machine for any application other than the intended one.
2. Never modify and alter the machine in order to prevent accident that can result in personal injury or death. JUKI assumes no responsibility for damages or personal injury or death resulting from the machine which has been modified or altered.

### **Education and training**

1. In order to prevent accident resulting from unfamiliarity with the machine, the machine has to be used only by the operator who has been trained/educated by the employer with respect to the machine operation and how to operate the machine with safety to acquire adequate knowledge and operation skill. To ensure the above, the employer has to establish an education/training plan for the operators and educate/ train them beforehand.

### **Items for which the power to the machine has to be turned off**

Turning the power off: Turning the power switch off, then removing the power plug from the outlet.

This applies to the following.

1. Be sure to immediately turn the power off if any abnormality or failure is found or in the case of power failure in order to protect against accident that can result in personal injury or death.
2. To protect against accident resulting from abrupt start of the machine, be sure to carry out the following operations after turning the power off. For the machine incorporating a clutch motor, in particular, be sure to carry out the following operations after turning the power off and verifying that the machine stops completely.
  - 2-1. For example, threading the parts such as the needle, looper, spreader etc. which have to be threaded, or changing the bobbin.
  - 2-2. For example, changing or adjusting all component parts of the machine.
  - 2-3. For example, when inspecting, repairing or cleaning the machine or leaving the machine.
3. Be sure to remove the power plug by holding the plug section instead of the cord section in order to prevent electrical-shock, earth-leakage or fire accident.
4. Be sure to turn the power off whenever the machine is left unattended between works.
5. Be sure to turn the power off in the case of power failure in order to prevent accident resulting of breakage of electrical components.

## **PRECAUTIONS TO BE TAKEN IN VARIOUS OPERATION STAGES**

## **Transportation**

1. Be sure to lift and move the machine in a safe manner taking the machine weight in consideration. Refer to the text of the engineer's manual for the mass of the machine.
2. Be sure to take sufficient safety measures to prevent falling or dropping before lifting or moving the machine in order to protect against accident that can result in personal injury or death.
3. Once the machine has been unpacked, never re-pack it for transportation to protect the machine against breakage resulting from unexpected accident or dropping.

## **Unpacking**

1. Be sure to unpack the machine in the prescribed order in order to prevent accident that can result in personal injury or death. In the case the machine is crated, in particular, be sure to carefully check nails. The nails have to be removed.
2. Be sure to check the machine for the position of its center of gravity and take it out from the package carefully in order to prevent accident that can result in personal injury or death.

## **Installation**

### **(I) Table and table stand**

1. Be sure to use JUKI genuine table and table stand in order to prevent accident that can result in personal injury or death. If it is inevitable to use a table and table stand which are not JUKI genuine ones, select the table and table stand which are able to support the machine weight and reaction force during operation.
2. If casters are fitted to the table stand, be sure to use the casters with a locking mechanism and lock them to secure the machine during the operation, maintenance, inspection and repair in order to prevent accident that can result in personal injury or death.

### **(II) Cable and wiring**

1. Be sure to prevent an extra force from being applied to the cable during the use in order to prevent electrical-shock, earth-leakage or fire accident. In addition, if it is necessary to cable near the operating section such as the V-belt, be sure to provide a space of 30 mm or more between the operating section and the cable.
2. Be sure to avoid starburst connection in order to prevent electrical-shock, earth-leakage or fire accident.
3. Be sure to securely connect the connectors in order to prevent electrical-shock, earth-leakage or fire accident. In addition, be sure to remove the connector while holding its connector section.

### **(III) Grounding**

1. Be sure to have an electrical expert install an appropriate power plug in order to prevent accident caused by earth-leakage or dielectric strength voltage fault. In addition, be sure to connect the power plug to the grounded outlet without exceptions.
2. Be sure to ground the earth cable in order to prevent accident caused by earth leakage.

### **(IV) Motor**

1. Be sure to use the specified rated motor (JUKI genuine product) in order to prevent accident caused by burnout.
2. If a commercially available clutch motor is used with the machine, be sure to select one with an entanglement preventive pulley cover in order to protect against being entangled by the V-belt.

## **Before operation**

1. Be sure to make sure that the connectors and cables are free from damage, dropout and looseness before turning the power on in order to prevent accident resulting in personal injury or death.
2. Never put your hand into the moving sections of the machine in order to prevent accident that can result in personal injury or death.  
In addition, check to be sure that the direction of rotation of the pulley agrees with the arrow shown on pulley.
3. If the table stand with casters is used, be sure to secure the table stand by locking the casters or with adjusters, if provided, in order to protect against accident caused by abrupt start of the machine.

## **During operation**

1. Be sure not to put your fingers, hair or clothing close to the moving sections such as the handwheel, hand pulley and motor or place something near those sections while the machine is in operation in order to prevent accident caused by entanglement that can result in personal injury or death.
2. Be sure not to place your fingers near the surround area of the needle or inside the thread take-up lever cover when turning the power on or while the machine is in operation in order to prevent accident that can result in personal injury or death.
3. The machine runs at a high speed. Never bring your hands near the moving sections such as looper, spreader, needle bar, hook and cloth trimming knife during operation in order to protect your hands against injury. In addition, be sure to turn the power off and check to be sure that the machine completely stops before changing the thread.
4. Be careful not to allow your fingers or any other parts of your body to be caught between the machine and table when removing the machine from or replacing it on the table in order to prevent accident that can result in personal injury or death.
5. Be sure to turn the power off and check to be sure that the machine and motor completely stop before removing the belt cover and V-belt in order to prevent accident caused by abrupt start of the machine or motor.

6. If a servomotor is used with the machine, the motor does not produce noise while the machine is at rest. Be sure not to forget to turn the power off in order to prevent accident caused by abrupt start of the motor.
7. Never use the machine with the cooling opening of the motor power box shielded in order to prevent fire accident by overheat.

#### **Lubrication**

1. Be sure to use JUKI genuine oil and JUKI genuine grease to the parts to be lubricated.
2. If the oil adheres on your eye or body, be sure to immediately wash it off in order to prevent inflammation or irritation.
3. If the oil is swallowed unintentionally, be sure to immediately consult a medical doctor in order to prevent diarrhea or vomiting.

#### **Maintenance**

1. In prevention of accident caused by unfamiliarity with the machine, repair and adjustment has to be carried out by a service technician who is thoroughly familiar with the machine within the scope defined in the engineer's manual. Be sure to use JUKI genuine parts when replacing any of the machine parts. JUKI assumes no responsibility for any accident caused by improper repair or adjustment or the use of any part other than JUKI genuine one.
2. In prevention of accident caused by unfamiliarity with the machine or electrical-shock accident, be sure to ask an electrical technician of your company or JUKI or distributor in your area for repair and maintenance (including wiring) of electrical components.
3. When carrying out repair or maintenance of the machine which uses air-driven parts such as an air cylinder, be sure to remove the air supply pipe to expel air remaining in the machine beforehand, in order to prevent accident caused by abrupt start of the air-driven parts.
4. Be sure to check that screws and nuts are free from looseness after completion of repair, adjustment and part replacement.
5. Be sure to periodically clean up the machine during its duration of use. Be sure to turn the power off and verify that the machine and motor stop completely before cleaning the machine in order to prevent accident caused by abrupt start of the machine or motor.
6. Be sure to turn the power off and verify that the machine and motor stop completely before carrying out maintenance, inspection or repair of the machine. (For the machine with a clutch motor, the motor will keep running for a while by inertia even after turning the power off. So, be careful.)
7. If the machine cannot be normally operated after repair or adjustment, immediately stop operation and contact JUKI or the distributor in your area for repair in order to prevent accident that can result in personal injury or death.
8. If the fuse has blown, be sure to turn the power off and eliminate the cause of blowing of the fuse and replace the blown fuse with a new one in order to prevent accident that can result in personal injury or death.
9. Be sure to periodically clean up the air vent of the fan and inspect the area around the wiring in order to prevent fire accident of the motor.

#### **Operating environment**

1. Be sure to use the machine under the environment which is not affected by strong noise source (electromagnetic waves) such as a high-frequency welder in order to prevent accident caused by malfunction of the machine.
2. Never operate the machine in any place where the voltage fluctuates by more than "rated voltage  $\pm 10\%$ " in order to prevent accident caused by malfunction of the machine.
3. Be sure to verify that the air-driven device such as an air cylinder operates at the specified air pressure before using it in order to prevent accident caused by malfunction of the machine.
4. To use the machine with safety, be sure to use it under the environment which satisfies the following conditions:  
 Ambient temperature during operation     $5^{\circ}\text{C}$  to  $35^{\circ}\text{C}$   
 Relative humidity during operation         $35\%$  to  $85\%$
5. Dew condensation can occur if bringing the machine suddenly from a cold environment to a warm one. So, be sure to turn the power on after having waited for a sufficient period of time until there is no sign of water droplet in order to prevent accident caused by breakage or malfunction of the electrical components.
6. Be sure to stop operation when lightning flashes for the sake of safety and remove the power plug in order to prevent accident caused by breakage or malfunction of the electrical components.
7. Depending on the radio wave signal condition, the machine may generate noise in the TV or radio. If this occurs, use the TV or radio with kept well away from the machine.
8. In order to ensure the work environment, local laws and regulations in the country where the sewing machine is installed shall be followed.  
 In the case the noise control is necessary, an ear protector or other protective gear should be worn according to the applicable laws and regulations.
9. Disposal of products and packages and treatment of used lubricating oil should be carried out properly according to the relevant laws of the country in which the sewing machine is used.

# PRECAUTIONS TO BE TAKEN IN VARIOUS OPERATION STAGES

## ELECTRICAL COMPONENTS



CAUTION

### Transportation

1. Be sure to lift this machine with four or more workers and use a carriage for moving it in order to prevent personal injury.
2. Be sure to take sufficient safety measures to prevent falling or dropping before lifting or moving the machine in order to protect against accident that can result in personal injury or death.
3. Installation is described in the Instruction Manual. Be sure to fully understand the description before putting the machine into operation.

### Replacement of parts

1. In prevention of accident caused by unfamiliarity with the machine or electrical-shock accident, be sure to ask an electrical technician of your company or JUKI or distributor in your area for replacement of electrical components.
2. When it is necessary to open the control box containing electrical parts, be sure to turn the power off and wait for five minutes or more before opening the cover in order to prevent accident caused by unfamiliarity with the machine or electrical-shock accident. In addition, do not carry out replacement work with wet hands in order to prevent electrical-shock accident.
3. Be sure to replace parts according to the instructions given in this Engineer's Manual and in the Instruction Manual in order to protect against accident that can result in personal injury.
4. Be sure to carry out replacement work after having installed the machine in a stable state in order to protect against accident that can result in personal injury. In addition, be sure to select appropriate tools.
5. Make sure, after the completion of replacement work, that there is no loose soldering, no contact with other parts, inadequate contact between connectors and receptacles, and loose screws/nuts in order to protect against accident that can result in personal injury.
6. Make sure, after the completion of replacement work, that neither connectors nor cables are damaged, slipped off or loosened in order to protect against accident that can result in personal injury. It should be remembered that some parts have been factory-insulated with tubes or tapes, or floated above the PWB for safety's sake. In addition, internal wiring has been factory-routed or -clamped in such a way that it does not come close to high-voltage parts. Be sure to re-place those parts as they are at the time of delivery.
7. Be sure to use JUKI genuine parts when replacing any of the machine parts. JUKI assumes no responsibility for any accident caused by any part other than JUKI genuine one. In addition, in the event you cannot replace parts within the specified range, immediately stop the replacement work and ask JUKI or distributor in your area for replacement of the parts.
8. If the fuse has blown, be sure to turn the power off and eliminate the cause of blowing of the fuse and replace the blown fuse with a new one in order to prevent accident that can result in personal injury or death.

### Adjustment

1. In prevention of accident caused by unfamiliarity with the machine or electrical-shock accident, be sure to ask an electrical technician of your company or JUKI or distributor in your area for adjustment of electrical components.
2. When it is necessary to open the control box containing electrical parts, be sure to turn the power off and wait for five minutes or more before opening the cover in order to prevent accident caused by unfamiliarity with the machine or electrical-shock accident. In addition, do not carry out adjustment work with wet hands in order to prevent electrical-shock accident.
3. In prevention of accident that can result in personal injury, adjust adjustment variable resistor or the like installed on PWB within the specified range given in this Engineer's Manual and in the Instruction Manual.
4. Be sure to carry out replacement work after having installed the machine in a stable state in order to protect against accident that can result in personal injury. In addition, be sure to select appropriate tools.
5. In prevention of accident that can result in personal injury, make sure, after the completion of adjustment work, that neither screws nor nuts are loosened or come in contact with other parts.

6. Make sure, after the completion of replacement work, that neither connectors nor cables are damaged, slipped off or loosened in order to protect against accident that can result in personal injury.
7. In prevention of accident that can result in personal injury or entanglement accident, be sure to ensure safety at the time of test run. In addition, be sure to take care not to allow hair or cloths to come in contact with the machine belt.

#### **Disassembly/assembly**

1. In prevention of accident that can result in personal injury, be sure to carry out disassembly/assembly work within the specified range given in this Engineer's Manual and in the Instruction Manual.
2. In prevention of accident caused by unfamiliarity with the machine or electrical-shock accident, be sure to ask an electrical technician of your company or JUKI or distributor in your area for disassembly/assembly of electrical components.
3. When it is necessary to open the control box containing electrical parts, be sure to turn the power off and wait for five minutes or more before opening the cover in order to prevent accident caused by unfamiliarity with the machine or electrical-shock accident. In addition, do not carry out disassembly/assembly work with wet hands in order to prevent electrical-shock accident.
4. Be sure to carry out replacement work after having installed the machine in a stable state in order to protect against accident that can result in personal injury.  
In addition, be sure to select appropriate tools.
5. In prevention of accident that can result in personal injury, be sure to tighten screws and nuts in assembly work with a specified torque, if specified, or with an appropriate torque, if not specified.  
After the completion of assembly work, be sure to check that screws and nuts are not loosened before starting test run.
6. In prevention of accident that can result in personal injury, make sure, after the completion of adjustment work, that neither screws nor nuts are loosened or come in contact with other parts.
7. Make sure, after the completion of replacement work, that neither connectors nor cables are damaged, slipped off or loosened in order to protect against accident that can result in personal injury.  
It should be remembered that some parts have been factory-insulated with tubes or tapes, or floated above the PWB for safety's sake. In addition, internal wiring has been factory-routed or -clamped in such a way that it does not come close to high-voltage parts. Be sure to re-place those parts as they are at the time of delivery.
8. In prevention of accident that can result in personal injury, be sure to check whether the direction of rotation is correct at the time of test run.
9. In prevention of accident that can result in personal injury or entanglement accident, be sure to ensure safety at the time of test run. In addition, be sure to take care not to allow hair or cloths to come in contact with the machine belt.

# **PRECAUTIONS TO BE TAKEN SO AS TO USE THE DDL-8000A SERIES MORE SAFELY**

|                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <ol style="list-style-type: none"> <li>1. Neither open the pulley cover nor touch the parts inside the pulley cover with the power remained on in order to prevent accidents due to electrical shock.</li> <li>2. To avoid personal injury, never put your fingers under the needle when you turn ON the power switch or operate the sewing machine.</li> <li>3. To avoid personal injury, never put your fingers into the thread take-up cover while the sewing machine is in operation.</li> <li>4. To avoid personal injury, turn OFF the power switch when you tilt the machine head.</li> <li>5. To avoid personal injury, be careful not to allow your fingers in the machine when tilting the machine head.</li> <li>6. Be sure to mount the machine head support bar on the machine table so that its height from the table surface becomes 55 to 60 mm.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|  | <ol style="list-style-type: none"> <li>1. Do not operate the sewing machine with the pulley cover and the finger guard removed in order to protect against personal injury.</li> <li>2. Neither place fingers, hair and/or clothes nor put anything in the area near the thread take-up lever while the sewing machine is in operation in order to protect against personal injury due to entanglement.</li> <li>3. Keep fingers away from the thread take-up cover and the needle when turning the power on in order to protect fingers and hands against injury.</li> <li>4. To avoid personal injury, turn OFF the power switch when you tilt the machine head.</li> <li>5. The hook rotates at a high speed while the machine is in operation. To prevent possible injury to hands, be sure to keep your hands away from the vicinity of the hook during operation. In addition, be sure to turn OFF the power to the machine when replacing the bobbin.</li> <li>6. So as to avoid personal injuries caused by abrupt start of the machine, turn OFF the power switch and ascertain that the sewing machine does not run even if the starting pedal is depressed when performing such works as inspection or adjustment of the sewing machine, cleaning, threading, replacing the needle, etc.</li> <li>7. So as to avoid electrical shock hazards, do not operate the machine with the power supply earth wire removed.</li> <li>8. So as to avoid electrical shock hazards and accidents caused by damaged electrical components, be sure to turn OFF the power switch before inserting/detaching the power plug.</li> <li>9. So as to avoid personal injuries caused by abrupt start of the machine, turn OFF the power switch when leaving the sewing machine table.</li> <li>10. So as to avoid personal injuries caused by abrupt start of the machine, turn OFF the power switch when the electricity fails.</li> <li>11. To prevent fires, periodically draw out the power plug from the plug socket and clean the root of the pins and the space between pins.</li> <li>12. The motor does not produce noise while the machine is at rest. To avoid possible accidents due to abrupt start of the machine, be sure to turn OFF the power to the machine.</li> <li>13. Be careful of handling this product so as not to pour water or oil, shock by dropping, and the like since this product is a precision instrument.</li> <li>14. In a domestic environment this product may cause radio interference, in which case the user may be required to make corrective actions.</li> </ol> |

# CAUTION BEFORE OPERATION

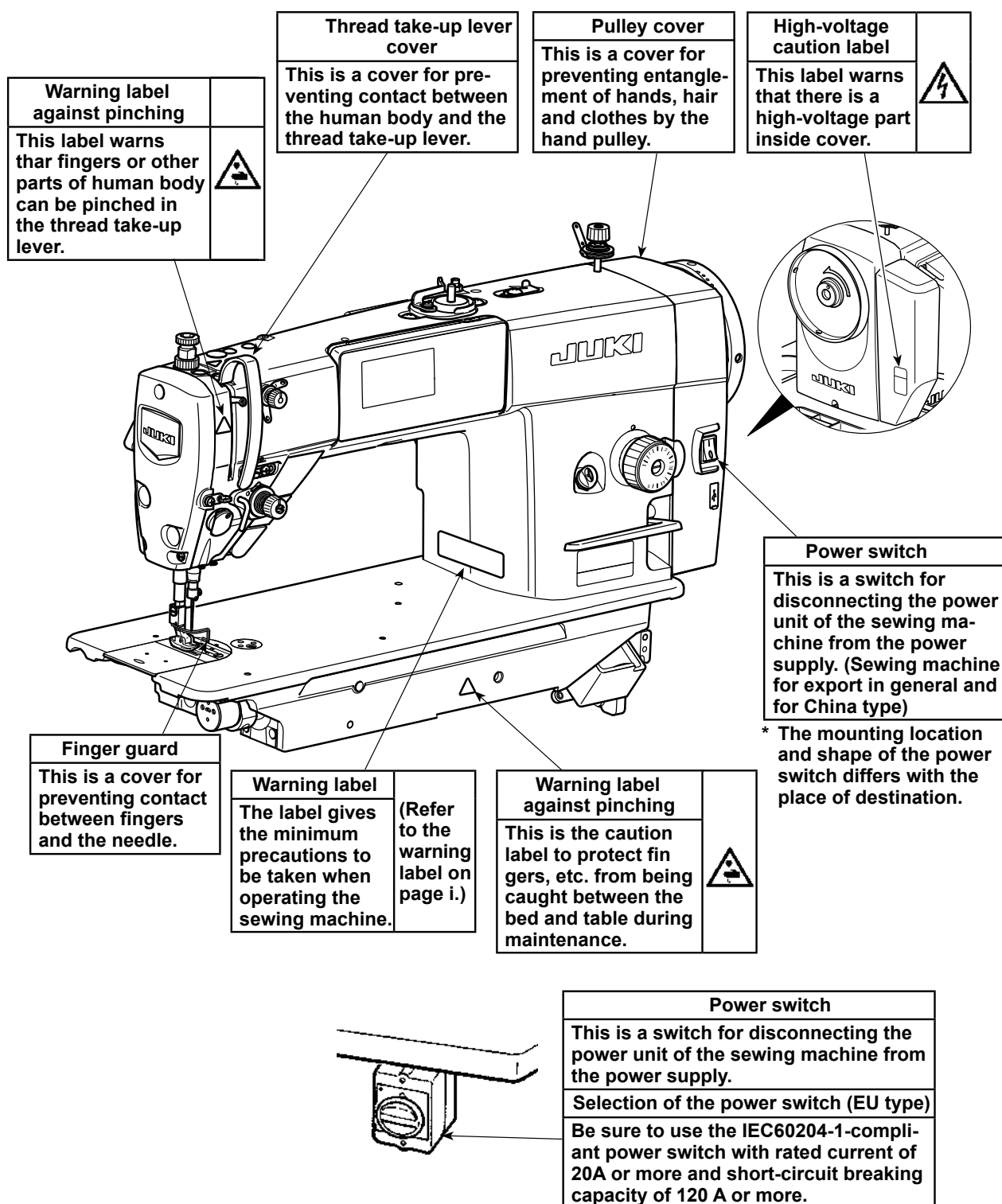


## CAUTION :

To avoid malfunction and damage of the machine, confirm the following.

- Clean the sewing machine thoroughly before using it for the first time.
- Remove all dust collected on the sewing machine during the transportation.
- Confirm that the voltage and phase are correct.
- Confirm that the power plug is properly connected.
- Never use the sewing machine in the state where the voltage type is different from the designated one.
- The direction of rotation of the sewing machine is counterclockwise as observed from the hand-wheel side. Be careful not to rotate it in reverse direction.

## SAFETY DEVICES AND WARNING LABELS



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# 1. Specifications

|                                        | Model                               |                                    | DDL-8000AB-MS                                                                                                                                                                                                    | DDL-8000AB-SH                                                                                              | DDL-8000AB-SJ                                                                                              |
|----------------------------------------|-------------------------------------|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|
| No.                                    | Item                                |                                    | Semi-dry for standard materials (Short tail)                                                                                                                                                                     | Minute-quantity lubrication for heavy-weight materials (Short tail)                                        | Minute-quantity lubrication for heavy-weight materials (Short tail)                                        |
| 1                                      | Max. sewing speed                   |                                    | 5000sti/min *1                                                                                                                                                                                                   | 4500sti/min *2                                                                                             | 4500sti/min *2                                                                                             |
| 2                                      | Max. stitch length                  |                                    | Difference of stitch length 5 mm                                                                                                                                                                                 |                                                                                                            |                                                                                                            |
| 3                                      | Needle bar stroke                   |                                    | 30.7mm                                                                                                                                                                                                           | 35mm                                                                                                       | 35mm                                                                                                       |
| 4                                      | Take-up lever stroke                |                                    | 110mm                                                                                                                                                                                                            | 113mm                                                                                                      | 113mm                                                                                                      |
| 5                                      | Thread trimming method              |                                    | Double-edged rotary type                                                                                                                                                                                         |                                                                                                            |                                                                                                            |
| 6                                      | Shorter-thread remaining function   |                                    | With *7                                                                                                                                                                                                          |                                                                                                            |                                                                                                            |
| 7                                      | Lower bobbin winder unit            |                                    | Built-in the machine head (with bobbin thread holding plate)                                                                                                                                                     |                                                                                                            |                                                                                                            |
| 8                                      | Needle thread nipper unit (NB type) |                                    | Electromagnetic                                                                                                                                                                                                  |                                                                                                            |                                                                                                            |
| 9                                      | Needle thread tension               |                                    | Spring type                                                                                                                                                                                                      |                                                                                                            |                                                                                                            |
| 10                                     | Presser foot pressure               |                                    | Spring type                                                                                                                                                                                                      |                                                                                                            |                                                                                                            |
| 11                                     | Number of patterns                  |                                    | Sewing pattern : 99 patterns<br>(For the polygonal shape sewing, as many as 10 patterns can be registered.)                                                                                                      |                                                                                                            |                                                                                                            |
| Cycle sewing pattern : 9 patterns      |                                     |                                    |                                                                                                                                                                                                                  |                                                                                                            |                                                                                                            |
| Custom-pitch pattern 20 patterns       |                                     |                                    |                                                                                                                                                                                                                  |                                                                                                            |                                                                                                            |
| Condensation custom pattern 9 patterns |                                     |                                    |                                                                                                                                                                                                                  |                                                                                                            |                                                                                                            |
| 12                                     | Data communication system           | USB                                | With                                                                                                                                                                                                             |                                                                                                            |                                                                                                            |
|                                        |                                     | LAN                                | Without                                                                                                                                                                                                          |                                                                                                            |                                                                                                            |
| 13                                     | Lubrication system                  | Plate (needle bar)                 | Grease lubrication                                                                                                                                                                                               | Oil wick lubrication                                                                                       | Oil wick lubrication                                                                                       |
|                                        |                                     | Hook                               | Plunger pump type                                                                                                                                                                                                |                                                                                                            |                                                                                                            |
|                                        |                                     | Gearbox                            | Grease lubrication+Special surface processing                                                                                                                                                                    |                                                                                                            |                                                                                                            |
| 14                                     | Oil supply                          | Plate (needle bar)                 | Grease lubrication +<br>Special surface processing                                                                                                                                                               | Oil wick lubrication                                                                                       | Oil wick lubrication                                                                                       |
|                                        |                                     | Hook                               | With oil tank (capacity: 160 ml)                                                                                                                                                                                 |                                                                                                            |                                                                                                            |
| 15                                     | Oil to be used                      | Plate (needle bar)                 | JUKI Grease A<br>(Part No.: 40006323)                                                                                                                                                                            | No.1 or 7 *3                                                                                               | No.1 or 7 *3                                                                                               |
|                                        |                                     | Hook                               | No.1 or 7 *3                                                                                                                                                                                                     |                                                                                                            |                                                                                                            |
|                                        |                                     | Gearbox                            | JUKI Grease A (product No.: 40006323)                                                                                                                                                                            |                                                                                                            |                                                                                                            |
| 16                                     | Lifting amount of presser           |                                    | By hand : 5.5mm<br>Auto : 1st step 5.0mm<br>: 2nd step 8.5mm                                                                                                                                                     |                                                                                                            |                                                                                                            |
| 17                                     | Needle                              |                                    | DB×1(#11)#9 to 18<br>1738 (Nm75) Nm65 to 110<br>-----<br>DP×5(#11)#9 to 18<br>134 (Nm75) Nm65 to 110                                                                                                             | DB×1(#21)#20 to 23<br>1738 (Nm130) Nm125 to 160<br>-----<br>DP×5(#21)#20 to 23<br>134 (Nm130) Nm125 to 160 | DB×1(#21)#20 to 23<br>1738 (Nm130) Nm125 to 160<br>-----<br>DP×5(#21)#20 to 23<br>134 (Nm130) Nm125 to 160 |
| 18                                     | Dimensions                          | From needle to machine arm (width) | 303mm                                                                                                                                                                                                            |                                                                                                            |                                                                                                            |
|                                        |                                     | From needle to machine arm (high)  | 137mm                                                                                                                                                                                                            |                                                                                                            |                                                                                                            |
|                                        |                                     | Bed size                           | 178mm × 517mm                                                                                                                                                                                                    |                                                                                                            |                                                                                                            |
| 19                                     | Machine head drive                  |                                    | Compact AC servomotor : 550W that is directly connected to the main shaft (direct-drive system)                                                                                                                  |                                                                                                            |                                                                                                            |
| 20                                     | Machine head weight                 |                                    | 40.2kg                                                                                                                                                                                                           |                                                                                                            |                                                                                                            |
| 21                                     | Power consumption                   |                                    | 330VA                                                                                                                                                                                                            |                                                                                                            |                                                                                                            |
| 22                                     | Working temperature and humidity    |                                    | Temperature: 5 °C to 35°C, humidity: 35% to 85% (No dew condensation permissible)                                                                                                                                |                                                                                                            |                                                                                                            |
| 23                                     | Supply voltage and frequency        |                                    | Rated voltage ±10%, 50/60Hz                                                                                                                                                                                      |                                                                                                            |                                                                                                            |
| 24                                     | Noise                               |                                    | SMS ; - Equivalent continuous emission sound pressure level (LpA) at the workstation:<br>A-weighted value of 78.7 dBA ; (Includes KpA = 2.5 dB) ; according to ISO 10821- C.6.2 -ISO 11204 GR2 at 4,000 sti/min. |                                                                                                            |                                                                                                            |
|                                        |                                     |                                    | PSH ; - Equivalent continuous emission sound pressure level (LpA) at the workstation:<br>A-weighted value of 77.5 dBA ; (Includes KpA = 2.5 dB) ; according to ISO 10821- C.6.2 -ISO 11204 GR2 at 4,000 sti/min  |                                                                                                            |                                                                                                            |

\*1 : Stitch length 0.00 to 4.00 : 5,000sti/min, stitch length 4.05 to 5.00 : 4,000sti/min

\*2 : Stitch length 0.00 to 4.00 : 4,500sti/min, stitch length 4.05 to 5.00 : 4,000sti/min

\*3 : JUKI New Defrix Oil No. 1 or JUKI CORPORATION GENUINE OIL.7 (equivalent to ISO VG7)

\*5 : Steady operation denotes the noise level produced when the machine is operated for 300 mm at a constant speed in the state that straight sewing is performed and no other units are actuated.

\*6 : Attachment device operation denotes the noise level produced while sewing a standard pattern for 300 mm operating automatic auto-back, thread trimmer, and needle thread clamp.

\*7 : The presence or absence of the shorter-thread remaining function denotes the presence or absence of the condensation device.

When the shorter-thread remaining function is present, the condensation device is a standard item.

When the shorter-thread remaining function is absent, on the other hand, the condensation device is not a standard item.

The condensation device can be installed afterward.

| No.                                    | Model                               |                                    | DDL-8000AS-MS                                                                                                                                                                                                                                                                                                                                                                                                                       | DDL-8000AS-SH                                                                                              | DDL-8000AS-SJ                                                                                              |
|----------------------------------------|-------------------------------------|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|
|                                        | Item                                |                                    | Semi-dry for standard materials                                                                                                                                                                                                                                                                                                                                                                                                     | Minute-quantity lubrication for heavy-weight materials                                                     | Minute-quantity lubrication for heavy-weight materials                                                     |
| 1                                      | Max. sewing speed                   |                                    | 5000sti/min *1                                                                                                                                                                                                                                                                                                                                                                                                                      | 4500sti/min *2                                                                                             | 4500sti/min *2                                                                                             |
| 2                                      | Max. stitch length                  |                                    | Difference of stitch length 5 mm                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                            |                                                                                                            |
| 3                                      | Needle bar stroke                   |                                    | 30.7mm                                                                                                                                                                                                                                                                                                                                                                                                                              | 35mm                                                                                                       | 35mm                                                                                                       |
| 4                                      | Take-up lever stroke                |                                    | 110mm                                                                                                                                                                                                                                                                                                                                                                                                                               | 113mm                                                                                                      | 113mm                                                                                                      |
| 5                                      | Thread trimming method              |                                    | Double-edged rotary type                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                            |                                                                                                            |
| 6                                      | Shorter-thread remaining function   |                                    | With *7                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                            |                                                                                                            |
| 7                                      | Lower bobbin winder unit            |                                    | Built-in the machine head (with bobbin thread holding plate)                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                            |                                                                                                            |
| 8                                      | Needle thread nipper unit (NB type) |                                    | Electromagnetic                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                            |                                                                                                            |
| 9                                      | Needle thread tension               |                                    | Spring type                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                            |                                                                                                            |
| 10                                     | Presser foot pressure               |                                    | Spring type                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                            |                                                                                                            |
| 11                                     | Number of patterns                  |                                    | Sewing pattern : 99 patterns<br>(For the polygonal shape sewing, as many as 10 patterns can be registered.)                                                                                                                                                                                                                                                                                                                         |                                                                                                            |                                                                                                            |
| Cycle sewing pattern : 9 patterns      |                                     |                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                            |                                                                                                            |
| Custom-pitch pattern 20 patterns       |                                     |                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                            |                                                                                                            |
| Condensation custom pattern 9 patterns |                                     |                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                            |                                                                                                            |
| 12                                     | Data communication system           | USB                                | With                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                            |                                                                                                            |
|                                        |                                     | LAN                                | Without                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                            |                                                                                                            |
| 13                                     | Lubrication system                  | Plate (needle bar)                 | Grease lubrication                                                                                                                                                                                                                                                                                                                                                                                                                  | Oil wick lubrication                                                                                       | Oil wick lubrication                                                                                       |
|                                        |                                     | Hook                               | Plunger pump type                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                            |                                                                                                            |
|                                        |                                     | Gearbox                            | Grease lubrication+Special surface processing                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                            |                                                                                                            |
| 14                                     | Oil supply                          | Plate (needle bar)                 | Grease lubrication +<br>Special surface processing                                                                                                                                                                                                                                                                                                                                                                                  | Oil wick lubrication                                                                                       | Oil wick lubrication                                                                                       |
|                                        |                                     | Hook                               | With oil tank (capacity: 160 ml)                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                            |                                                                                                            |
| 15                                     | Oil to be used                      | Plate (needle bar)                 | JUKI Grease A<br>(Part No.: 40006323)                                                                                                                                                                                                                                                                                                                                                                                               | No.1 or 7 *3                                                                                               | No.1 or 7 *3                                                                                               |
|                                        |                                     | Hook                               | No.1 or 7 *3                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                            |                                                                                                            |
|                                        |                                     | Gearbox                            | JUKI Grease A (product No.: 40006323)                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                            |                                                                                                            |
| 16                                     | Lifting amount of presser           |                                    | By hand : 5.5mm<br>Auto : 1st step 5.0mm<br>: 2nd step 8.5mm                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                            |                                                                                                            |
| 17                                     | Needle                              |                                    | DB×1(#11)#9 to 18<br>1738 (Nm75) Nm65 to 110<br>-----<br>DP×5(#11)#9 to 18<br>134 (Nm75) Nm65 to 110                                                                                                                                                                                                                                                                                                                                | DB×1(#21)#20 to 23<br>1738 (Nm130) Nm125 to 160<br>-----<br>DP×5(#21)#20 to 23<br>134 (Nm130) Nm125 to 160 | DB×1(#21)#20 to 23<br>1738 (Nm130) Nm125 to 160<br>-----<br>DP×5(#21)#20 to 23<br>134 (Nm130) Nm125 to 160 |
| 18                                     | Dimensions                          | From needle to machine arm (width) | 303mm                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                            |                                                                                                            |
|                                        |                                     | From needle to machine arm (high)  | 137mm                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                            |                                                                                                            |
|                                        |                                     | Bed size                           | 178mm × 517mm                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                            |                                                                                                            |
| 19                                     | Machine head drive                  |                                    | Compact AC servomotor : 550W that is directly connected to the main shaft (direct-drive system)                                                                                                                                                                                                                                                                                                                                     |                                                                                                            |                                                                                                            |
| 20                                     | Machine head weight                 |                                    | 40.2kg                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                            |                                                                                                            |
| 21                                     | Power consumption                   |                                    | 330VA                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                            |                                                                                                            |
| 22                                     | Working temperature and humidity    |                                    | Temperature: 5 °C to 35°C, humidity: 35% to 85% (No dew condensation permissible)                                                                                                                                                                                                                                                                                                                                                   |                                                                                                            |                                                                                                            |
| 23                                     | Supply voltage and frequency        |                                    | Rated voltage ±10%, 50/60Hz                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                            |                                                                                                            |
| 24                                     | Noise                               |                                    | SMS ; - Equivalent continuous emission sound pressure level (LpA) at the workstation:<br>A-weighted value of 78.7 dBA ; (Includes KpA = 2.5 dB) ; according to ISO 10821- C.6.2 -ISO 11204 GR2 at 4,000 sti/min.<br>PSH ; - Equivalent continuous emission sound pressure level (LpA) at the workstation:<br>A-weighted value of 77.5 dBA ; (Includes KpA = 2.5 dB) ; according to ISO 10821- C.6.2 -ISO 11204 GR2 at 4,000 sti/min |                                                                                                            |                                                                                                            |

\*1 : Stitch length 0.00 to 4.00 : 5,000sti/min, stitch length 4.05 to 5.00 : 4,000sti/min

\*2 : Stitch length 0.00 to 4.00 : 4,500sti/min, stitch length 4.05 to 5.00 : 4,000sti/min

\*3 : JUKI New Defrix Oil No. 1 or JUKI CORPORATION GENUINE OIL.7 (equivalent to ISO VG7)

\*5 : Steady operation denotes the noise level produced when the machine is operated for 300 mm at a constant speed in the state that straight sewing is performed and no other units are actuated.

\*6 : Attachment device operation denotes the noise level produced while sewing a standard pattern for 300 mm operating automatic auto-back, thread trimmer, and needle thread clamp.

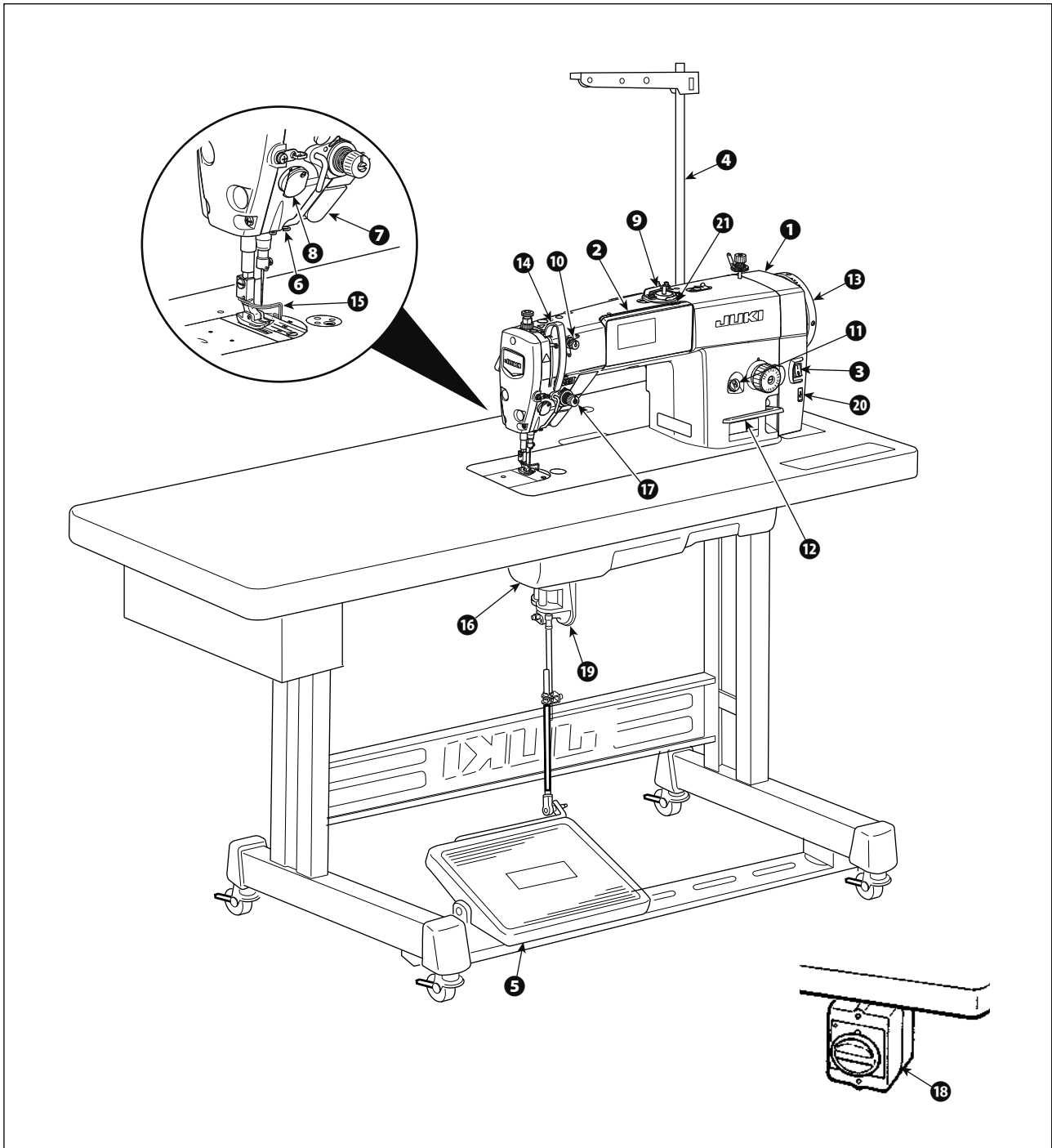
\*7 : The presence or absence of the shorter-thread remaining function denotes the presence or absence of the condensation device.

When the shorter-thread remaining function is present, the condensation device is a standard item.

When the shorter-thread remaining function is absent, on the other hand, the condensation device is not a standard item.

The condensation device can be installed afterward.

## 2. Name of each component



- |                                      |                         |
|--------------------------------------|-------------------------|
| ❶ Control box                        | ❷ Reverse feed lever    |
| ❸ Operation Panel                    | ❹ Hand wheel            |
| ❺ Power switch                       | ❺ Take-up lever cover   |
| ❻ Thread stand                       | ❻ Finger guard          |
| ❼ Operation pedal                    | ❼ Under cover           |
| ❽ LED hand light                     | ❽ 2nd thread tension    |
| ❾ One-touch type reverse feed button | ❾ Power switch (For CE) |
| ❿ Needle thread presser device       | ❿ Pedal sensor          |
| ⓫ Bobbin winder unit                 | ⓫ USB terminal          |
| ⓬ 1st thread tension                 | ⓬ USB terminal          |
| ⓭ Oil filler port                    |                         |

- ❶ Control box**  
The box contains the circuit that controls the head unit and motor, the output circuit that operates each output (the reverse feed solenoid, etc.), the pedal sensor that detects the pedal operation, and the power circuit that performs each function.
- ❷ Operation panel**  
It allows you to adjust the automatic reverse feed stitching speed and a head sewing speed and set a feed pitch and so on.
- ❸ Power switch**  
This switch turns on and off the power to the head unit motor, electric components, and operation panel.
- ❹ Thread stand**
- ❺ Operation pedal**  
This pedal allows users to conduct machine speed control, thread trimming, presser lifting motion (only for AK-154), and more by depressing the front or back part of the pedal.
- ❻ LED hand light**  
This is the LED hand light installed on the bottom of the arm jaw. The light illuminates the area surrounding the needle entry. Its brightness can be adjusted with the hand switch. It should be adjusted to match the sewing item and/or to your preference.
- ❼ One-touch type reverse feed button**  
This button allows users to conduct reverse stitching.
- ❽ Needle thread presser device**  
This device is able to tuck the needle thread on the wrong side of material under control of the signal from the control box.
- ❾ Bobbin winder unit**  
This unit is integrated into the head unit.
- ❿ 1st thread tension**
- ⓫ Oil filler port**  
This port is used for lubrication to the hook.
- ⓬ Reverse feed lever**  
This lever allows users to conduct reverse stitching.
- ⓭ Hand wheel**
- ⓮ Take-up lever cover**  
This cover prevents users from touching the take-up lever.
- ⓯ Finger guard**  
This guard prevents users (mainly thumb and fingers) from touching the needle.
- ⓰ Under cover**
- ⓱ 2nd thread tension**
- ⓲ Power switch (for CE)**
- ⓳ Pedal sensor**
- ⓴ USB terminal**  
It can be used a power supply. (The sewing machine cannot be updated from this USB terminal.)
- ⓵ USB terminal**  
Insert a USB flash drive on which the software is copied. The sewing machine can be updated from this USB terminal.

### 3. Standard adjustment

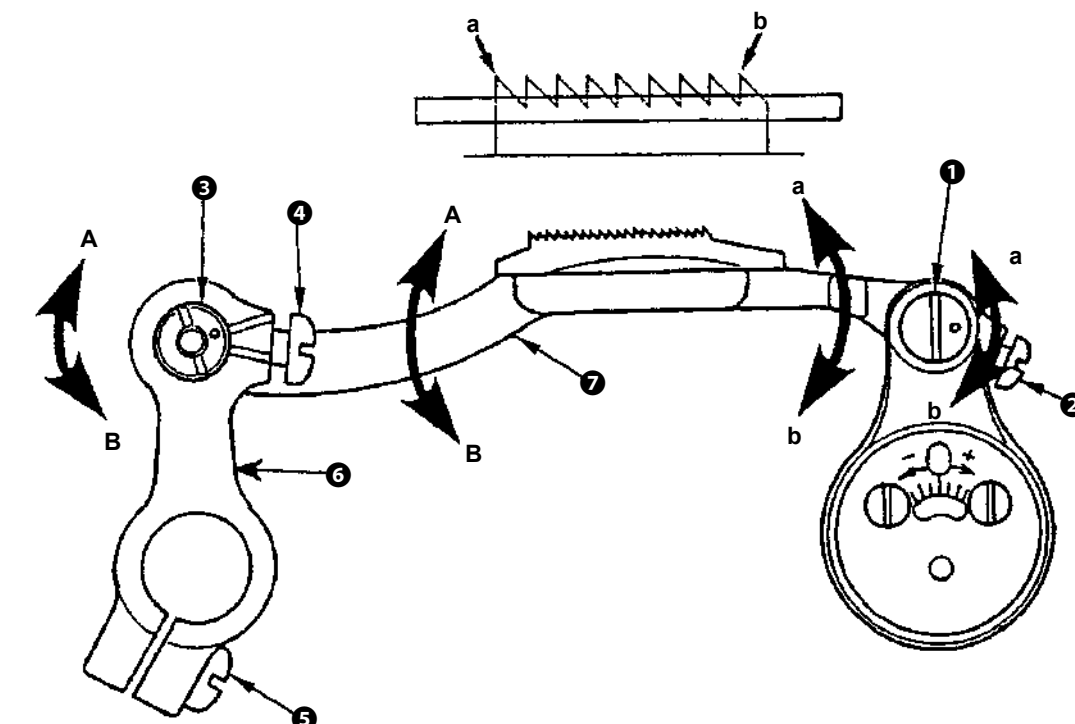
#### (1) Feed dog height and gradient



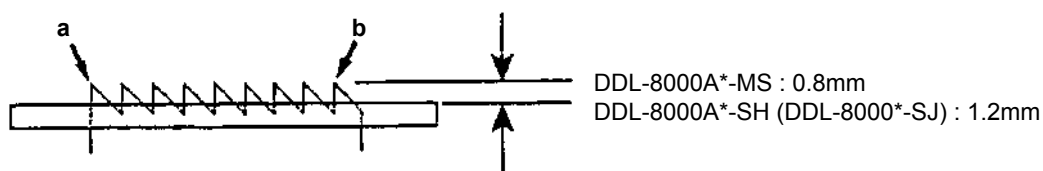
#### WARNING :

Be sure to turn the power OFF before the following work in order to prevent personal injury due to unintentional starting of the sewing machine.

#### Standard adjustment



|                                                               |                                                                   |                                                                                                     |
|---------------------------------------------------------------|-------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|
| Shipped feed dog                                              | <ul style="list-style-type: none"> <li>• 40133950 (MS)</li> </ul> | <ul style="list-style-type: none"> <li>• 11403003 (SH-AA/BB)</li> <li>• 11062601 (SH-GG)</li> </ul> |
| Engraved marker dot position on the horizontal feed bar shaft |                                                                   |                                                                                                     |



Standard feed dog height (Feed dial graduation 0)

0.8mm : DDL-8000A\*-MS

1.2mm : DDL-8000A\*-SH (DDL-8000A\*-SJ)

Standard feed dog gradient

The engraved marker dot on the feed bar shaft ③ is adjusted by a feed dog of relevant standard.

| Adjustment Procedure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Results of Improper Adjustment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none"> <li>Set the amount of feeding (feed dial graduation) at 0.</li> <li>Loosen the setscrew ❷ of the vertical feed bracket shaft ❶ and the setscrew ❹ of the horizontal feed bracket shaft ❸.</li> <li>The feed dog height and gradient are changed when both shafts of the vertical feed bracket shaft ❶ and the horizontal feed bracket shaft ❸ are turned by means of a flatblade screwdriver.</li> <li>After adjustments, firmly tighten the screws that have been loosened.<br/>(Screw tightening should be done under the condition that the setscrews ❷ and ❹ are pushed against the vertical feed bracket shaft ❶ and the horizontal feed bracket shaft ❸.)</li> </ol> <p><b>(Caution)</b>1. In regard to the locus of standard feeding, the throat plate and the feed dog rise almost horizontally when the throat plate rises.</p> <ol style="list-style-type: none"> <li>The position of the engraved marker dots for the vertical feed bracket shaft ❶ and the horizontal feed bracket shaft ❸ should be adjusted on the near side (operator side). (Refer to Fig. D.)</li> <li>Assemble the feeder bar ❷ perpendicular to the vertical feed bracket shaft ❶ and horizontal feed bracket shaft ❸ without load.</li> </ol> <div data-bbox="204 1290 951 1680"> </div> <p style="text-align: center;">Fig. D</p> | <ul style="list-style-type: none"> <li>If the gradient of the feed dog is adjusted for either shaft only, the feed dog height may be changed. Adjustments are needed for both shafts in all cases.</li> <li>According to the shaft adjusting position, the position of feed dog motion may be shifted.<br/>In such a case, loosen the tightening screw ❺ of the horizontal feed arm ❻ to adjust the position of motion.</li> <li>According to the result of feed dog height or gradient adjustments, there is possibility of interference with the thread trimmer unit.</li> <li>When the feed dog height is set above the standard level, the feeding power is improved. Instead, there can be problems of presser jumping at high speed and flaws in light materials.</li> <li>If the feed dog height is too much, a return will be given to the front side (Section C) of the feed dog. As a result, the behavior of material feeding may be affected.<br/>If the height has to be increased for an unavoidable reason, the amount of return can be reduced by adjusting the gradient of the feed dog to raise its tip.</li> </ul> <div data-bbox="1082 1738 1343 1980"> </div> <p>0.8mm DDL-8000A*-MS<br/>1.2mm DDL-8000A*-SH<br/>(DDL-8000A*-SJ)</p> |

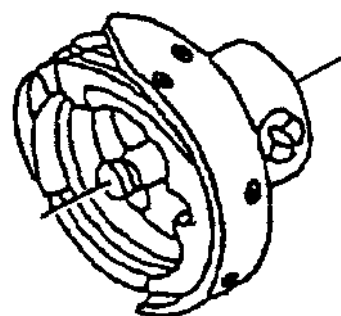
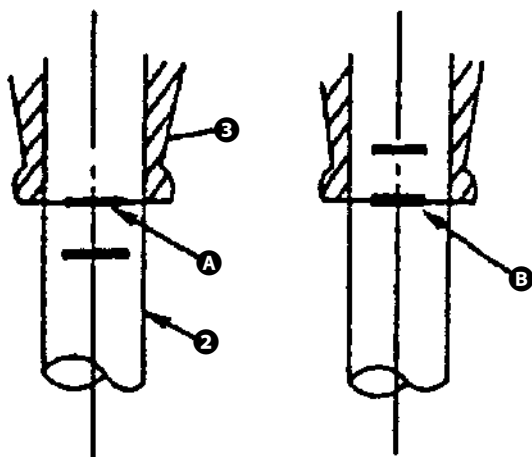
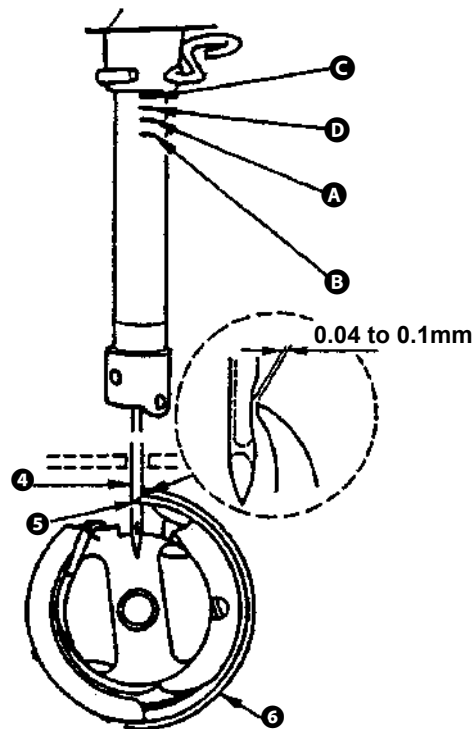
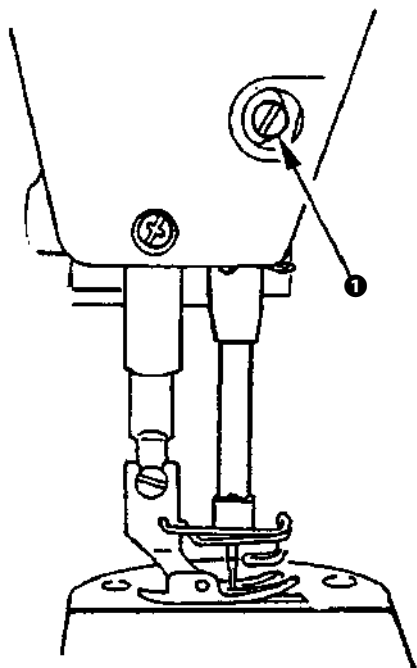
## (2) Adjusting the needle and the hook



### WARNING :

Be sure to turn the power OFF before the following work in order to prevent personal injury due to unintentional starting of the sewing machine.

### Standard adjustment



Lubricated hook K  
Part No. : 23621303

| Adjustment Procedure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Results of Improper Adjustment |                         |                         |              |                     |          |       |        |                  |          |       |        |                                  |          |       |        |                                                                                                                                                                                                                                                                                                                               |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|-------------------------|-------------------------|--------------|---------------------|----------|-------|--------|------------------|----------|-------|--------|----------------------------------|----------|-------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>1. Turn the flywheel until the needle bar ❷ comes to its lowest position, and loosen the needle bar connecting setscrew ❶.</div> <div>2. Determine the needle bar height.<br/>Adjust the engraved marker line (marker line ❸ for the DB needle and marker line ❹ for the DA needle) of the needle bar ❷ to the lower end of the needle bar lower metal ❺ and tighten the needle bar connecting setscrew ❶. (Be careful not to tighten the needle bar connecting setscrew ❶ too much.)</div> <div>3. Determine the mounting position of the hook ❻.<br/>Loosen and turn the three hook setscrews in the direction of flywheel forward revolutions to raise the needle bar ❷. In this direction, adjust the engraved marker line (marker line ❸ for the DB needle and marker line ❹ for the DA needle) to the lower end of the needle bar lower metal ❺.</div> <div>4. In this state, adjust the blade point ❺ of the inner hook to the center of the needle ❸ so that a clearance of 0.04 to 0.1mm (goal value) is secured between the needle ❸ and the hook ❻. Since then, firmly tighten the three hook setscrews.</div> <div>&lt;Dry hook&gt;<br/>Use the following part number.<br/>The hook part numbers come in two types according to the specifications.<br/>22890206 (without the needle guard)<br/>22890404 (with the needle guard)<br/>22890305 (22890206 with special surface treatment)<br/><b>(Caution) The dry hook (RP hook) tends to collect thread chips and material dust. This can cause malfunction or defective stitches. Periodic cleaning is required.</b></div> <div>&lt;Lubricated hook K: Available separately&gt;<br/>This is a hard blade point hook with a needle holder applicable to needle size #9 (#65).<br/>Where a thin needle has to be used for reasons of sewing processes, this type of hook is applicable to the prevention of stitch skipping and needle breakage.<br/>About the needle bar</div> <table><tr><th>Specifications</th><th>Part No.</th><th>Amount of looper return</th><th>Needle shank</th></tr><tr><td>DDL-8000A*-MS-AA/CC</td><td>22886907</td><td>1.8mm</td><td>ø 1.64</td></tr><tr><td>DDL-8000A*-MS-BB</td><td>22887004</td><td>1.8mm</td><td>ø 2.02</td></tr><tr><td>DDL-8000A*-SH<br/>(DDL-8000A*-SJ)</td><td>40061767</td><td>2.3mm</td><td>ø 1.64</td></tr></table> | Specifications                 | Part No.                | Amount of looper return | Needle shank | DDL-8000A*-MS-AA/CC | 22886907 | 1.8mm | ø 1.64 | DDL-8000A*-MS-BB | 22887004 | 1.8mm | ø 2.02 | DDL-8000A*-SH<br>(DDL-8000A*-SJ) | 40061767 | 2.3mm | ø 1.64 | <div>○ If this clearance is too small, the blade point of the hook ❻ may be damaged.</div> <div>○ Too much clearance may give rise to stitch skipping.</div> <div>○ When you use a dry hook, buy and mount the parts that stop the hook oil quantity.<br/>Refer to "3.-(7)-5) Adjusting the amount of oil in the hook".</div> |
| Specifications                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Part No.                       | Amount of looper return | Needle shank            |              |                     |          |       |        |                  |          |       |        |                                  |          |       |        |                                                                                                                                                                                                                                                                                                                               |
| DDL-8000A*-MS-AA/CC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 22886907                       | 1.8mm                   | ø 1.64                  |              |                     |          |       |        |                  |          |       |        |                                  |          |       |        |                                                                                                                                                                                                                                                                                                                               |
| DDL-8000A*-MS-BB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 22887004                       | 1.8mm                   | ø 2.02                  |              |                     |          |       |        |                  |          |       |        |                                  |          |       |        |                                                                                                                                                                                                                                                                                                                               |
| DDL-8000A*-SH<br>(DDL-8000A*-SJ)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 40061767                       | 2.3mm                   | ø 1.64                  |              |                     |          |       |        |                  |          |       |        |                                  |          |       |        |                                                                                                                                                                                                                                                                                                                               |

### (3) Setting of feed timing

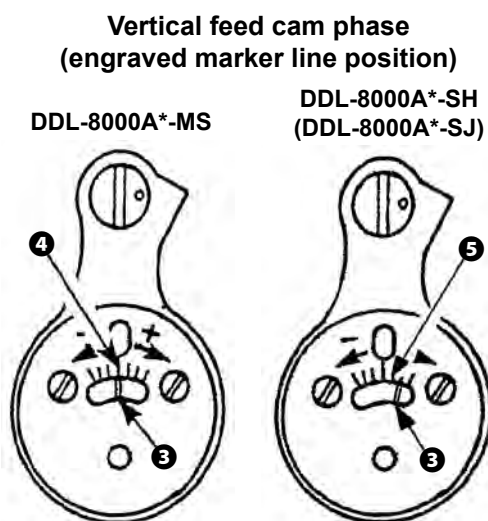
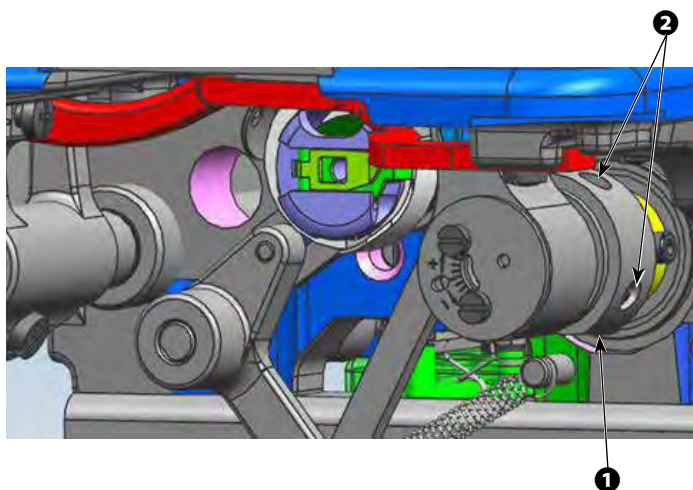


#### **WARNING :**

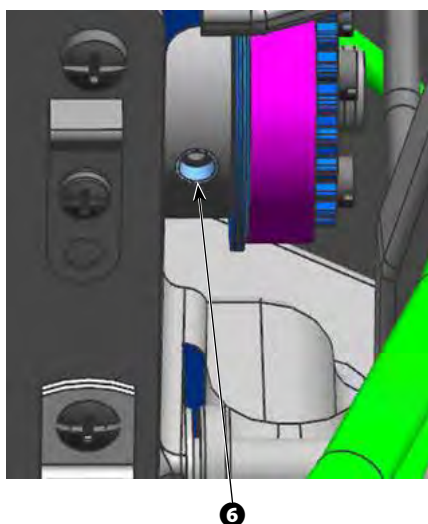
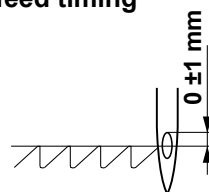
Be sure to turn the power OFF before the following work in order to prevent personal injury due to unintentional starting of the sewing machine.

#### **Standard adjustment**

##### **1) Standard adjustment**



#### **Needle and feed timing**



#### **Standard Adjustment**

| Models                                 | DDL-8000A*-MS                                                                                                                                                                                                               | DDL-8000A*-SH<br>(DDL-8000A*-SJ) |
|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|
| Vertical feed cam engraved marker line | 0°                                                                                                                                                                                                                          | +20°                             |
| Feed dial graduations                  | 3                                                                                                                                                                                                                           | 4                                |
| Needle and feed timing                 | In a moment when the feed dog is positioned below the upper surface of the throat plate, the upper end (lower end of the throat plate for B-SH) of the needle hole shall be 0±1mm from the upper plane of the throat plate. |                                  |

| Adjustment Procedure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Results of Improper Adjustment                                                                                                                                                                                                                                            |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>1) Standard adjustment</b></p> <ol style="list-style-type: none"> <li>Adjust the feed dial graduations. <ul style="list-style-type: none"> <li>DDL-8000A*-SH : Feed dial graduation 4 (DDL-8000A*-SJ)</li> <li>Other than DDL-8000A*-MS: Feed dial graduation 3</li> </ul> </li> <li>Let the sewing machine fall down and check the engraved marker line position of the vertical feed cam ❶. <ul style="list-style-type: none"> <li>DDL-8000A*-SH : +20° (❺)</li> <li>(DDL-8000A*-SJ)</li> <li>Other than DDL-8000A*-MS : 0° (❹)</li> </ul> <p>For adjustments, loosen two vertical feed cam setscrews ❷ and adjust the cam to the engraved marker line ❸.</p> <p><b>(Caution) The angle of the engraved marker line graduation 1 denotes 10°.</b></p> </li> <li>Loosen two lower sprocket screws ❸.</li> <li>At the feed dog lowering timing (position where the upper end of the feed dog coincides with the upper plane of the throat plate), fix the vertical feed cam ❶ and slowly turn the flywheel in forward direction until the upper end of the needle hole coincides with the upper plane of the throat plate. <ul style="list-style-type: none"> <li>* In case of other than the DDL-8000A*-MS, the engraved marker dot ❷ of the pulley cover is matched with the engraved marker dot ❸ between the two engraved lines of the flywheel.</li> </ul> <p>When the top end of the needle hole is matched with the top face of the throat plate, tighten two lower sprocket screws ❸. (Tightening torque for reference: 4.5N·m)</p> </li> <li>Adjust the thread trimmer cam timing.<br/>Refer to [3.-(11)-3] Thread trimmer cam standard timing].</li> <li>Adjust the hook timing.<br/>Refer to [3.-(2) Adjusting the needle and the hook].</li> </ol> <p><b>(Cautions) When the above-mentioned adjustments are finished, operate the sewing machine and examine whether any unusual sound or torque is generated or the thread trimmer unit works normally.</b></p> | <ul style="list-style-type: none"> <li>When tightening the two vertical feed cam setscrews ❷, this work should be done while a good centering is secured. Otherwise, there will be adverse torque or unusual sound generation, or abnormal wear may be caused.</li> </ul> |

### (3) Setting of feed timing

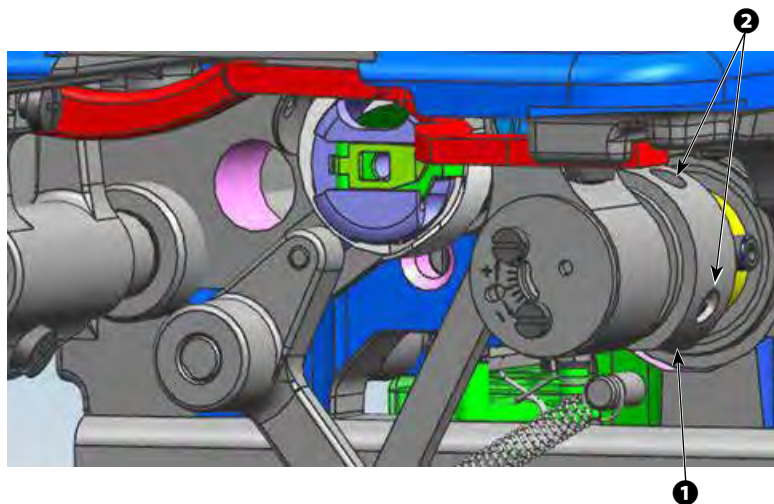


#### **WARNING :**

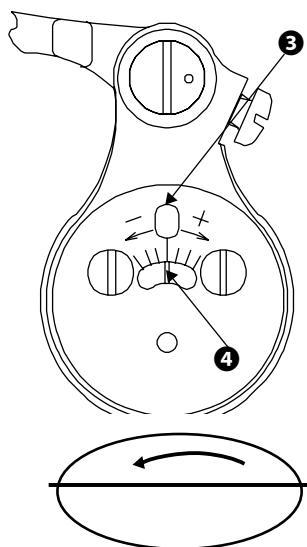
Be sure to turn the power OFF before the following work in order to prevent personal injury due to unintentional starting of the sewing machine.

#### **Standard adjustment**

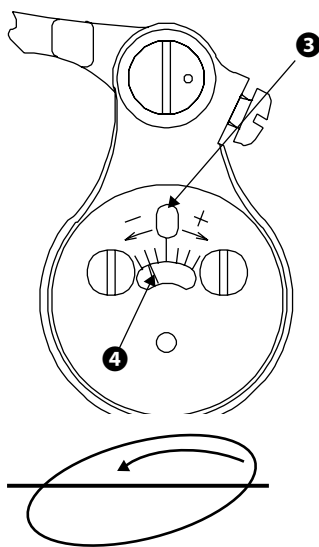
#### **2) Feed trace and phase adjustment**



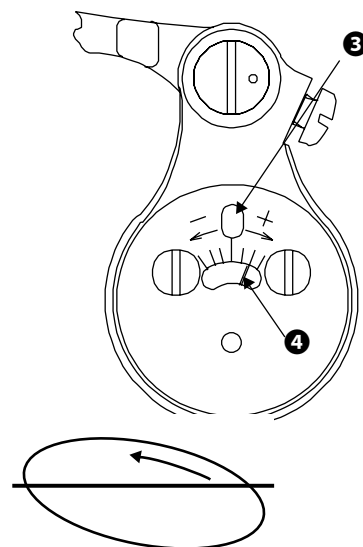
**1. Timing standard**



**2. Timing fast**



**3. Timing slow**



| Adjustment Procedure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Results of Improper Adjustment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>2) Feed trace and phase adjustment</b></p> <p>By adjusting the phase of the vertical feed cam ❶, it is possible to change the up/down timing for the feed locus and needle.</p> <p>Adjustments can be carried out with two setscrews ❷.</p> <p>1. Timing standard (For DDL-8000A*-MS)</p> <p>The vertical feed shaft engraved marker line ❹ coincides with the vertical feed cam engraved marker line ❸ at 0°.</p> <p>Refer to “3.-(3)-1) Standard adjustment”.</p> <p>2. Timing fast</p> <p>If you adjust the vertical feed shaft engraved marker line ❹ to the vertical feed cam engraved marker line ❸ and the minus side, the vertical feed timing is hastened against horizontal feed. (Also hastened against the needle)</p> <p><b>(Cautions) Adjustments should be done within -20° (2 graduations).</b></p> <p>3. Timing slow</p> <p>If you adjust the vertical feed shaft engraved marker line ❹ to the vertical feed cam engraved marker line ❸ and the plus side, the vertical feed timing is delayed against horizontal feed. (Also delayed against the needle)</p> <p><b>(Cautions) Adjustments should be done within +20° (2 graduations).</b></p> <p><b>(Cautions) 1. When timing of the vertical feed cam ❶ is changed, the feed timing is also changed against the needle.</b></p> <p><b>2. The angle of the engraved marker line graduation 1 denotes 10°.</b></p> | <ul style="list-style-type: none"> <li>○ When tightening the two set-screws ❷ of the vertical feed cam ❶, this work should be done while a good centering is secured.</li> <li>Otherwise, there will be adverse torque or unusual sound generation, or abnormal wear may be caused.</li> <li>○ Since the motion in horizontal direction is reduced at the beginning of feeding, the material cloth is fed assuredly by the effect of creep reduction.</li> <li>○ Feeding force is reduced around the end of feeding because the feed dog lowers faster.</li> <li>○ The motion becomes moderate at the beginning of feeding, thus making the material cloth biting worse.</li> <li>○ Light materials tend to be less damaged.</li> <li>○ The material cloth is fed assuredly at the end of feeding. Thanks to the leading effect, puckering tends to be improved.</li> </ul> |

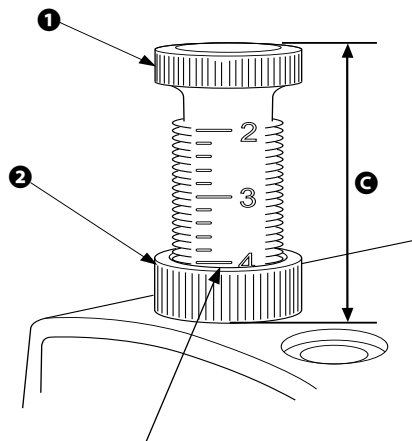
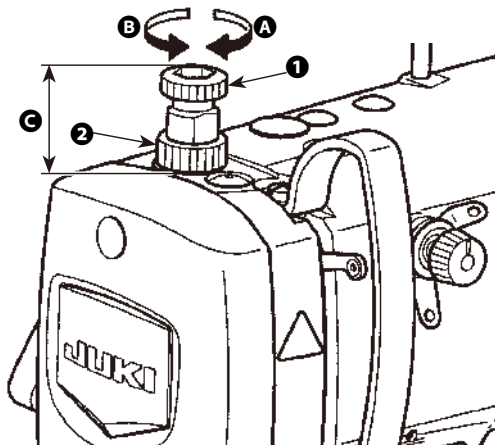
#### (4) Adjustment of inner hook presser position



**WARNING :**

Be sure to turn the power OFF before the following work in order to prevent personal injury due to unintentional starting of the sewing machine.

##### Standard adjustment



Height of the presser adjusting screw ① can be read from the upper face value of the nut ②.

Example: Approx. 40mm

| Adjustment Procedure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                | Results of Improper Adjustment |                        |                       |                        |               |      |      |   |                                  |      |    |     |  |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|--------------------------------|------------------------|-----------------------|------------------------|---------------|------|------|---|----------------------------------|------|----|-----|--|--|
| <p>[Adjustment of the presser pressure]</p> <p>1. Loosen the nut ❷ and turn the presser adjusting screw ❶.</p> <p>Turning in Direction ❶ for strengthening</p> <p>Turning in Direction ❷ for weakening</p> <p>2. Tighten the nut ❷ after adjustments.</p> <p>* Standard value of the presser adjusting screw height ❸</p> <table border="1"> <tr> <th>Specifications</th><th>Height mm<br/>❸</th><th>Presser<br/>Pressure N</th><th>Presser<br/>Pressure kg</th></tr> <tr> <td>DDL-8000A*-MS</td><td>29.5</td><td>39.2</td><td>4</td></tr> <tr> <td>DDL-8000A*-SH<br/>(DDL-8000A*-SJ)</td><td>29.5</td><td>60</td><td>6.1</td></tr> </table> <p>(The presser adjusting screw varies depending on the specification.)</p> |                | Specifications                 | Height mm<br>❸         | Presser<br>Pressure N | Presser<br>Pressure kg | DDL-8000A*-MS | 29.5 | 39.2 | 4 | DDL-8000A*-SH<br>(DDL-8000A*-SJ) | 29.5 | 60 | 6.1 |  |  |
| Specifications                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Height mm<br>❸ | Presser<br>Pressure N          | Presser<br>Pressure kg |                       |                        |               |      |      |   |                                  |      |    |     |  |  |
| DDL-8000A*-MS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 29.5           | 39.2                           | 4                      |                       |                        |               |      |      |   |                                  |      |    |     |  |  |
| DDL-8000A*-SH<br>(DDL-8000A*-SJ)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 29.5           | 60                             | 6.1                    |                       |                        |               |      |      |   |                                  |      |    |     |  |  |

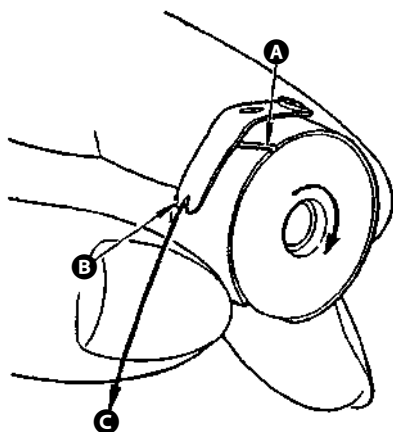
## (5) Bobbin insertion



### WARNING :

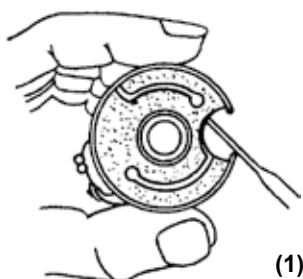
Be sure to turn the power OFF before the following work in order to prevent personal injury due to unintentional starting of the sewing machine.

### Standard adjustment

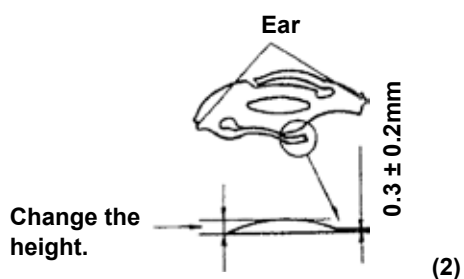


### 1) Bobbin case with idling prevention spring

(Drawing is for 40000264.)

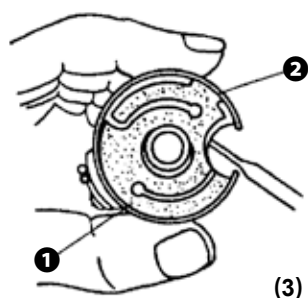


(1)

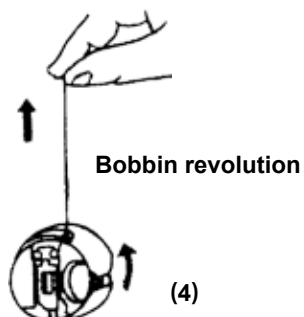


(2)

○ For the bobbin case with idling prevention spring



(3)



(4)

| Adjustment Procedure                                                                                                                                                                                                                                                                                                                                                                                                                                                | Results of Improper Adjustment                                                                                                                   |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>1. Hold the bobbin so that it turns to the right and insert it in the bobbin case. (See Drawing.)</div> <div>2. Pass the thread through the threading port <b>A</b> of the bobbin case. When the thread is pulled in the direction of <b>B</b>, it can be pulled toward the threading port <b>C</b> passing beneath the thread tension spring.</div> <div>3. Examine if the bobbin turns in the direction of the arrow when the bobbin thread is pulled.</div> | <div>○ If the direction of clockwise winding is adopted, variation is lessened possibly caused by a change in the amount of bobbin thread.</div> |

About the standard part numbers(DDL-8000A\*-S□□)

| Part name                                 | MS type                    | SH, SJ type                |
|-------------------------------------------|----------------------------|----------------------------|
| Bobbin case                               | 11038759                   | 40000264                   |
| Bobbin case with idling prevention spring | 11038700                   | 11038700                   |
| Bobbin                                    | 22932909<br>(Made of iron) | 22932909<br>(Made of iron) |

Bobbin case with idling prevention spring

The DDL-8000A Series employs the bobbin case with an idling prevention spring.

Adjustments of idling prevention spring tension can be carried out in the procedures below.

If bobbin idling occurs, increase the idling prevention spring tension

When the bobbin runs idle

→

Increase the tension of the idle-prevention spring.

When the thread is not well tightened

→

Decrease the tension of the idle-prevention spring.

[Adjustment of idling prevention spring tension]

If there is a problem of bobbin idling or uneven sewing at high or low speed, use of a bobbin case with an idling prevention spring is effective.

(1) Insert an old needle as illustrated and remove the spring by lifting it up.  
(Suggestion: Use the thumb to prevent the spring from popping out.)

(2) The spring tension can be changed by changing the height of the arch-shaped section of the spring.  
(Make sure not to permit the free end of the spring to come out of the bobbin case.)

(3) Firstly, set the ear **①** and insert the needle. Then, settle the ear **②** is the state that the center part of the spring is lifted.

(4) When a bobbin case with an idling prevention spring is used, it should be inserted in the winding direction as illustrated.

(Unevenness in sewing at high or low speed)

When sewing seems to be too tight at low speed:

→

Adjust the bobbin thread tension and the idling prevention spring tension to be strengthened.

When sewing seems to be too weak at low speed:

→

Adjust the bobbin thread tension and the idling prevention spring tension to be weakened.

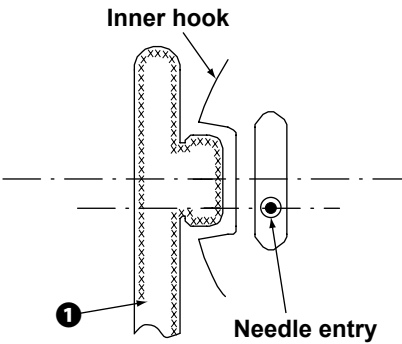
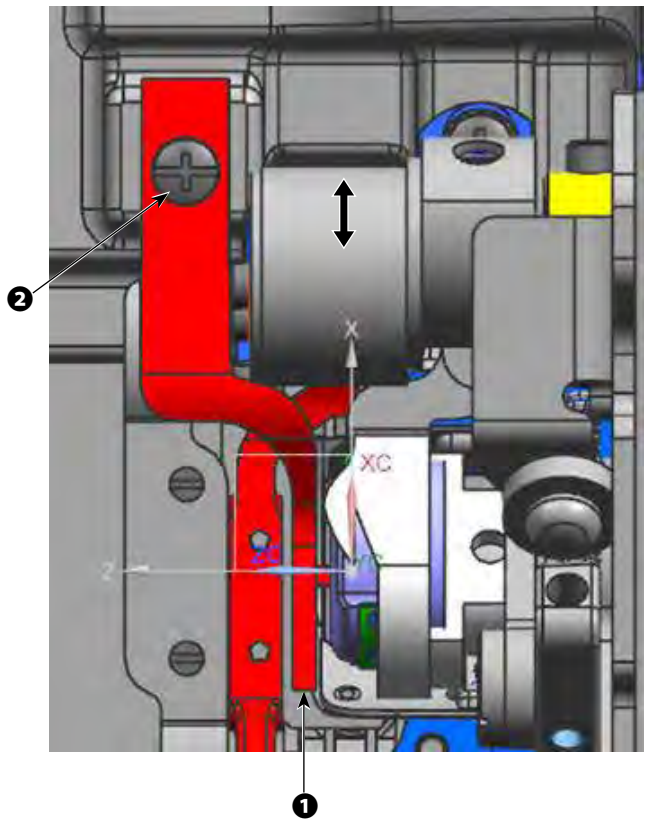
(6) Adjustment of inner hook presser position



**WARNING :**  
Be sure to turn the power OFF before the following work in order to prevent personal injury due to unintentional starting of the sewing machine.

Standard adjustment

Inner hook presser position

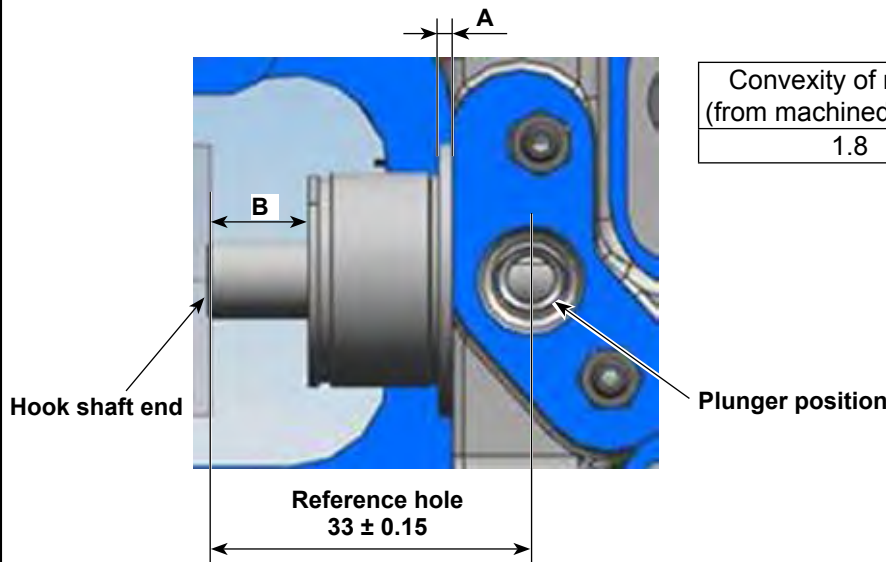


\* As seen from above, after removing the throat plate

About the standard part numbers

| Part name          | MS type (Semi-dry) | SH (SJ) type (Micro-quantity lubrication) |
|--------------------|--------------------|-------------------------------------------|
| Inner hook presser | 40089607           | 40089610                                  |

Hook shaft position



| Convexity of metal A<br>(from machined surface) | Convexity<br>of Hook shaft B |
|-------------------------------------------------|------------------------------|
| 1.8                                             | 9.9                          |

| Adjustment Procedure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Results of Improper Adjustment                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>1. The front and rear positions of the inner hook presser ❶ can be adjusted by means of the setscrew ❷.</p> <p>[Standard adjusting value]</p> <p>Fasten the needle entry section by means of the setscrew ❷ so that it is located closer to the shoulder section toward the front side from the center of the convex section of the inner hook presser ❶.</p> <p><b>(Caution)</b> When adjusting the hook shaft position, make sure of the plunger movement without fail (the bobbing motion).</p> | <ul style="list-style-type: none"> <li>○ If the convex section of the inner hook presser ❶ has any flaw, this can be a cause of thread breakage or uneven sewing.<br/>In such a case, the damaged part shall be replaced with a new one.</li> <li>○ If the inner hook presser ❶ is positioned inadequately, an extra tension is exerted when the thread comes out of the convex section. This can be a cause of shrinkage errors.</li> </ul> |

## (7) Lubrication

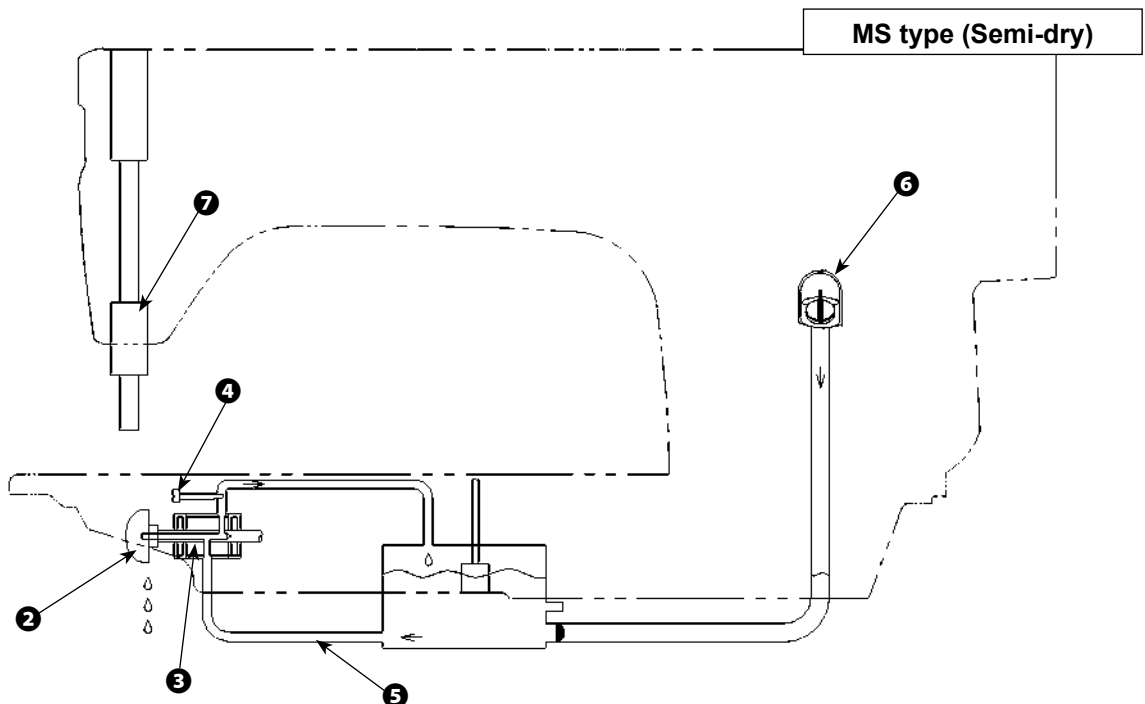
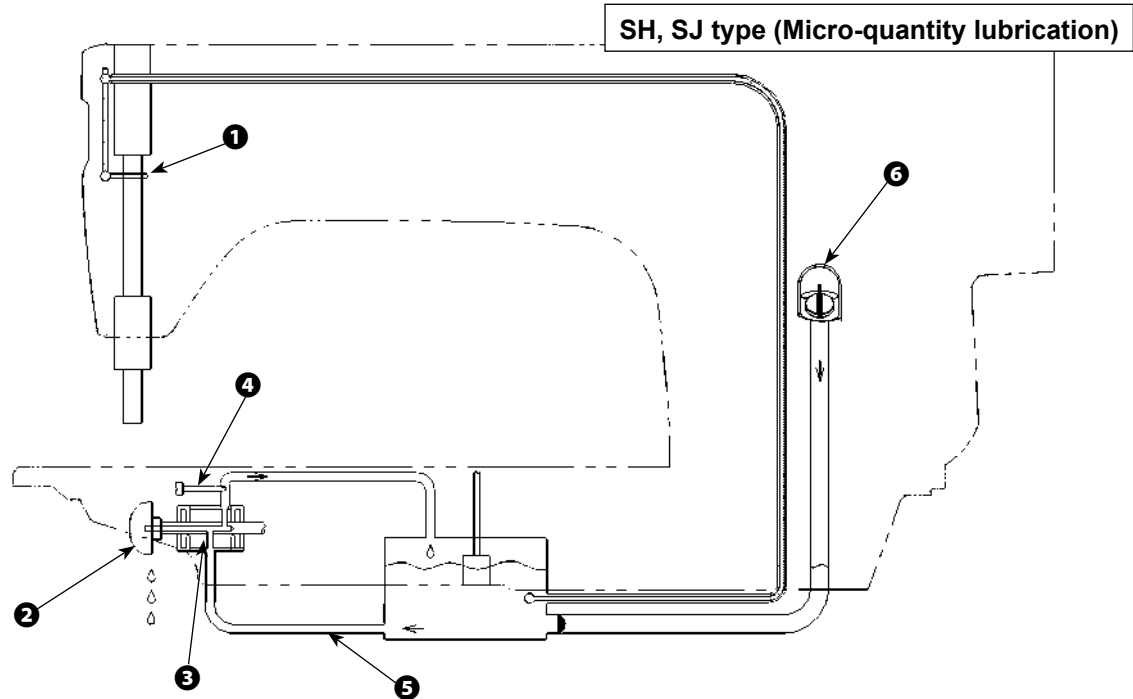


### WARNING :

Be sure to turn the power OFF before the following work in order to prevent personal injury due to unintentional starting of the sewing machine.

### Standard adjustment

#### 1) Method of lubrication





## (7) Lubrication

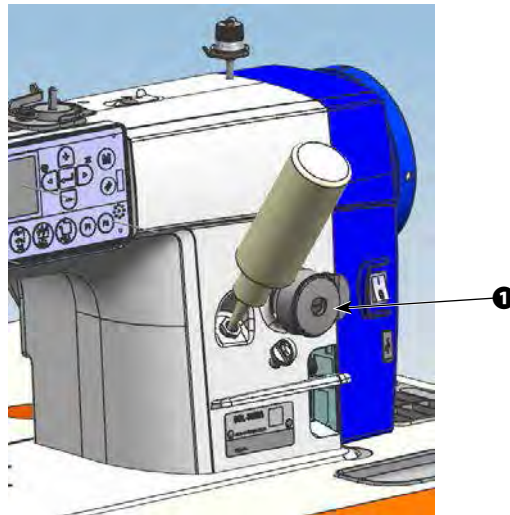


### **WARNING :**

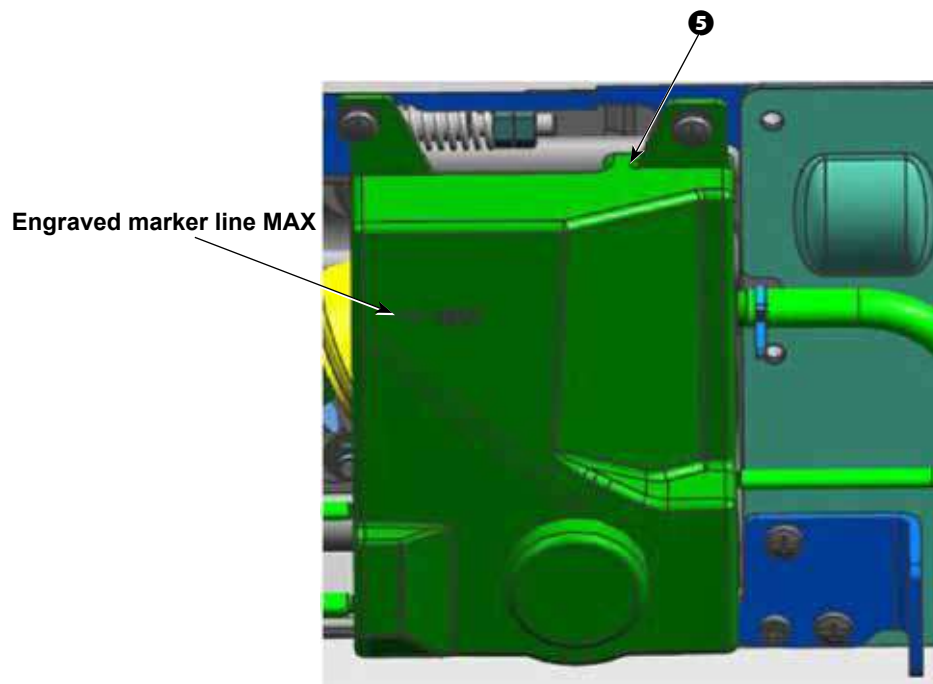
Be sure to turn the power OFF before the following work in order to prevent personal injury due to unintentional starting of the sewing machine.

### **Standard adjustment**

#### **2) Method of lubrication to the oil tank**



#### **3) Method of oil drainage from the oil tank**



| Adjustment Procedure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Results of Improper Adjustment                                                                                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>2) Method of lubrication to the oil tank</b></p> <p>Fill the oil tank ⑤ with oil for hook lubrication before operating the sewing machine.</p> <ol style="list-style-type: none"> <li>1. Turn on the power of the sewing machine, remove the oil hole cap ①, and fill the oil tank with supplied NEW DEFRIX OIL No. 1 (part number: 40214211 MDFRX1600C0) or JUKI CORPORATION GENUINE OIL 7 (part number: 40102087).</li> </ol> <p><b>(Cautions) The power is turned on, and therefore, do not put your hand into operating parts.</b></p> <ol style="list-style-type: none"> <li>2. When the oil amount in the oil tank reaches the maximum point, the  on the panel starts blinking and an alarm sounds.<br/>Stop filling oil.<br/>If the oil is filled excessively, it will leak from the air vent hole in the oil tank ⑤ or proper lubrication will be not performed. In addition, when the oil is vigorously filled, it may overflow from the oil hole. So, be careful.</li> <li>3. When the oil amount in the oil tank reaches the certain low point, the  on the panel starts blinking and an alarm sounds. Supply oil.</li> </ol> <p><b>(Cautions)</b></p> <ol style="list-style-type: none"> <li>1. When you use a new sewing machine or a sewing machine after an extended period of disuse, use the sewing machine after performing break-in at 2,000 sti/min or less.</li> <li>2. For the oil for hook lubrication, purchase JUKI NEW DEFRIX OIL No. 1 (part number : 40214221/ MDFRX1600C0), or JUKI CORPORATION GENUINE OIL 7 (part number : 40102087).</li> <li>3. Be sure to lubricate clean oil.</li> <li>4. Do not operate the machine with the oil hole cap ① removed. Never remove cap ① from the oil inlet in any case other than oiling. In addition, take care not to lose it.</li> </ol> <p><b>3) Method of oil drainage from the oil tank</b></p> <p>When carrying the sewing machine or during maintenance servicing, it is possible to remove the lubricant from the oil tank.</p> <ol style="list-style-type: none"> <li>1. Let the sewing machine fall down.</li> <li>2. Insert the oil pan in the undercover.</li> <li>3. Pull out the lubrication pipe of the oil tank ⑤ and drain oil.</li> <li>4. A maximum of 160 ml of oil (to the MAX line) can be contained in the oil tank ⑤.</li> </ol> | <ul style="list-style-type: none"> <li>○ Lubricant shall be removed, without fail, when transporting the sewing machine.</li> <li>○ Due to vibration during transportation, oil leakage may be caused through the air relief hole located on top of the oil tank ⑤.</li> </ul> |

## (7) Lubrication

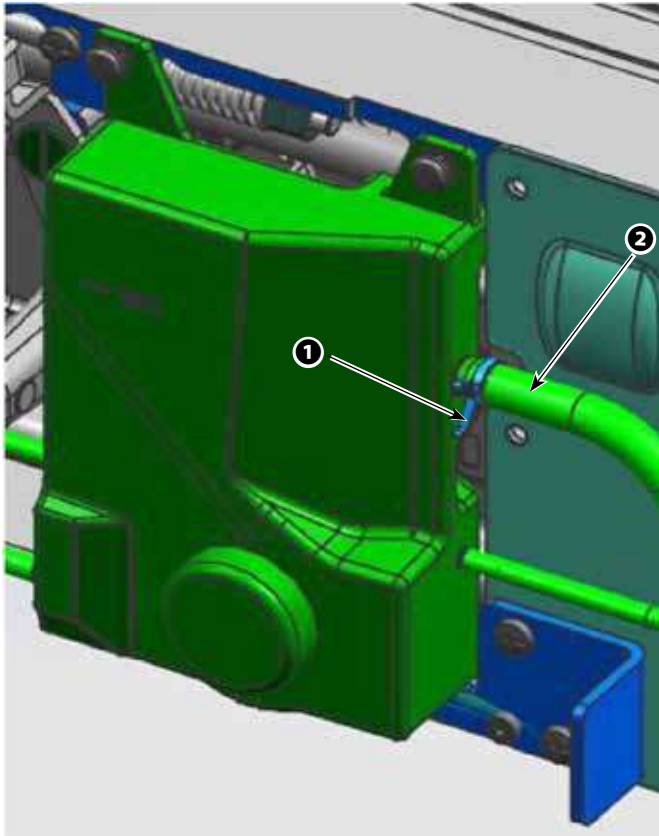


### **WARNING :**

Be sure to turn the power OFF before the following work in order to prevent personal injury due to unintentional starting of the sewing machine.

### **Standard adjustment**

#### **4) Cleaning of the oil filter**



| Adjustment Procedure                                                                                                                                                                                                                                                                                                                                                                                                                            | Results of Improper Adjustment                                                                                                                                   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>4) Cleaning of the oil filter</b></p> <p>Clean the oil filter ❷ periodically (approximately once every three months).</p> <ol style="list-style-type: none"> <li>1. Let the sewing machine fall down.</li> <li>2. Remove the pipe stop ❶ and then the thread waste attached to the oil filter ❷.</li> </ol> <p><b>(Cautions) Be careful that a lubrication pipe and so on are not damaged at the time of maintenance of a filter.</b></p> | <ul style="list-style-type: none"> <li>○ If there is clogging in the oil filter ❶, smooth lubrication cannot be maintained from the lubrication hole.</li> </ul> |

## (7) Lubrication



### WARNING :

Be sure to turn the power OFF before the following work in order to prevent personal injury due to unintentional starting of the sewing machine.

### Standard adjustment

#### 5) Adjusting the amount of oil in the hook

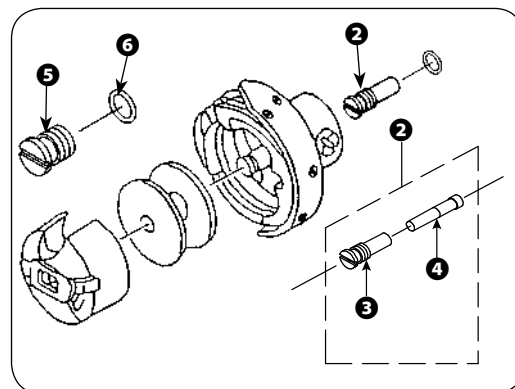
#### 6) Hook oil adjustment procedures

#### 7) Essentials for hook oil adjustments

#### 8) Replacement of the hook shaft oil wick

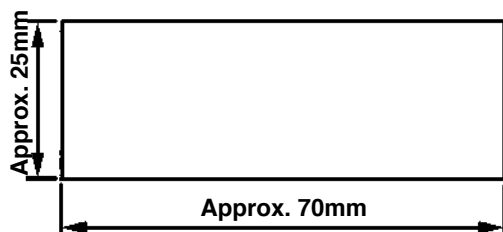


decrease  increase



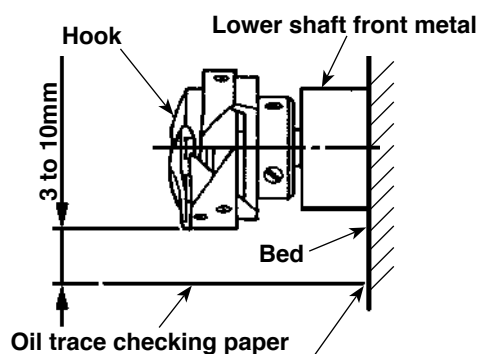
|   | DESCRIPTION                                  | Part No.    |
|---|----------------------------------------------|-------------|
| 2 | Hook driving shaft oil wick setscrew         | 22916555    |
| 3 | Hook driving shaft stopper screw             | 22916506    |
| 4 | Hook driving shaft stopper setscrew oil wick | 11015906    |
| 5 | Hook driving shaft stopper screw             | 11079506    |
| 6 | O-ring                                       | RO036080200 |

#### Oil quantity (trace) checking paper



\* Unnecessary to worry about the quality of paper.

#### Oil quantity (trace) checking paper

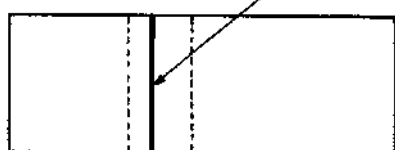


To be applied to the bed wall.

\* Apply the oil quantity (trace) checking paper to hooks lower side and check it from a distance of 3 to 10mm.

#### Oil quantity (small)

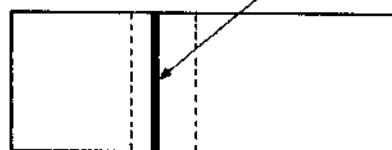
Oil sprinkles from the hook



- DDL-8000A\*-MS : 0.5 to 1mm
- DDL-8000A\*-SH (SJ) : 1 to 3mm

#### Oil quantity (large)

Oil sprinkles from the hook



- 8000A\*-MS : 1 to 1.5mm
- 8000A\*-SH (SJ) : 2 to 4mm

| Adjustment Procedure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Results of Improper Adjustment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>5) Adjusting the amount of oil in the hook</b><br/> Tighten (turn clockwise) oil amount adjustment screw ❶ to increase the amount of oil in the hook, or loosen (turn counterclockwise) to decrease it.<br/> <b>(Caution)</b><br/> <b>[When using RP hook (hook for dry head) for DDL-8000A*-MS type]</b></p> <ol style="list-style-type: none"> <li>1. Remove hook driving shaft oil wick setscrew ❷ and attach hook driving shaft stopper screw ❸ (part number : 11079506) and O-ring ❹ (part number : RO036080200).</li> <li>2. Loosen oil amount adjustment screw ❶ up to the minimum so as to reduce the oil amount in the hook. However, do not completely stop the oil and be careful not to allow oil adjustment screw ❶ to come off.</li> <li>3. Never drain the oil in the oil tank even when RP hook (hook for dry head) is used.</li> </ol> <p><b>6) Hook oil adjustment procedures</b></p> <ol style="list-style-type: none"> <li>1. Tighten the hook oil quantity adjusting screw ❶ to obtain the maximum oil rate and operate the machine for about 30 seconds.</li> <li>2. Loosen the oil adjusting screw by two turns and check the quantity of oil.<br/> In this case, give 30 seconds of idling to the sewing machine and measure the quantity of oil at the intervals of 5 seconds (about 35 seconds in total).</li> <li>3. According to the quantity of oil secured at that time, determine the amount of turning for the hook oil quantity adjusting screw ❶. Give 30 seconds of idling to the sewing machine after re-adjustment and measure the quantity of oil at the intervals of 5 seconds.</li> <li>4. Adjust the screw position in the procedures of 2. to 3. above until an adequate quantity of oil has been attained.</li> </ol> <p><b>(Caution) When the hook is replaced or in the case of the head (including the heads in a new state) not used for a long time, it takes about 10 to 20 seconds (4,000sti/min) until the oil begins to appear from the hook.</b><br/> The machine stays in the state of causing seizure. Therefore, use the machine after running-in operation at 2,000sti/min or below.</p> <p><b>7) Essentials for hook oil adjustments</b></p> <ol style="list-style-type: none"> <li>1. When the quantity of hook oil is adjusted from excessive oiling condition to reducing condition (loosening the screw), it is possible to carry out stable adjustments.</li> <li>2. Check the oil quantity about three times to confirm the stability.</li> <li>3. If the quantity of oil is too much before adjustments, operate the machine continuously for about one minute so that the oil attached to the hook and remaining in the oil path can be flung off completely.</li> </ol> <p><b>8) Replacement of the hook shaft oil wick</b><br/> Hook driving shaft stopper setscrew oil wick ❹ is a consumable item. Periodic replacement is recommended for the stabilization of hook oil quantity.</p> <ol style="list-style-type: none"> <li>1. Remove the hook.</li> <li>2. Remove the hook driving shaft stopper screw ❸.</li> </ol> <p><b>(Caution) Make sure not to hurt the tip hole of the hook driving shaft stopper screw ❸.</b></p> <ol style="list-style-type: none"> <li>3. Enter a new hook driving shaft stopper setscrew oil wick ❹ to the inner part of the hook driving shaft stopper screw ❸ and then get it around the hook shaft.</li> </ol> | <ul style="list-style-type: none"> <li>○ When you use an dry hook, buy and mount the hook driving shaft stopper screw ❸ and O-ring ❹ that stop the hook oil quantity.</li> <li>○ By feeding very much oil, let the oil prevalent around the hook and through the lubrication route as a whole so that the oil path can be stabilized.</li> </ul> <p>&lt;When the quantity of hook oil is too much&gt;</p> <ul style="list-style-type: none"> <li>○ Too much oil can stain the materials to be sewn.</li> <li>○ Oil consumption in the oil tank is increased.</li> </ul> <p>&lt;When the quantity of hook oil is too less&gt;</p> <ul style="list-style-type: none"> <li>○ The lubrication route tends to be affected easily by factors such as dust. It is, therefore, necessary to check the condition of oil quantity periodically.</li> <li>○ Under rigorous conditions (operation at high speed or continuous operation), pay attention to the possible occurrence of problems such as hook seizure and thread breakage by heat.</li> <li>○ If a contaminated oil is used, filter clogging occurs earlier and this can be a cause of unstable oil quantity.</li> </ul> |

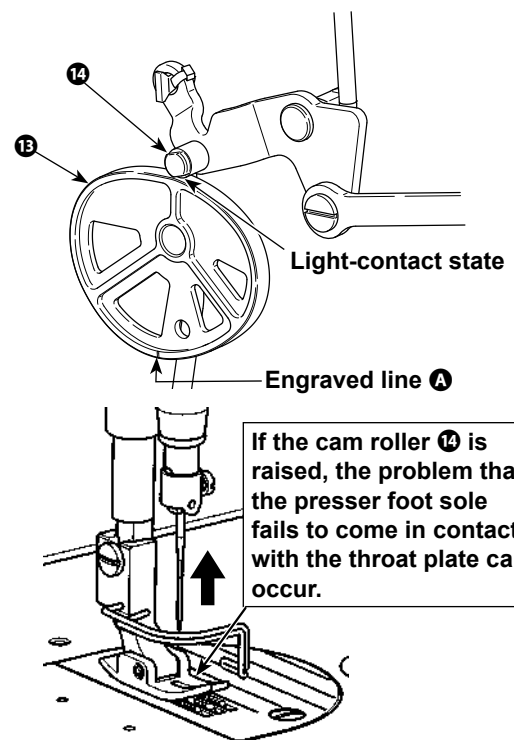
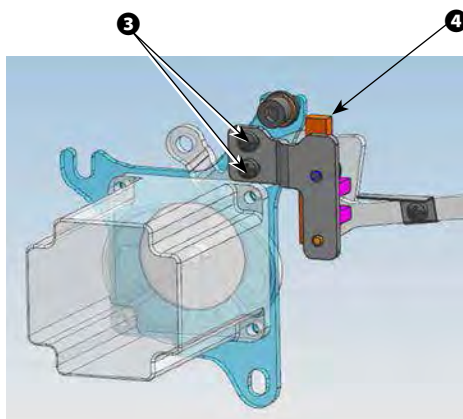
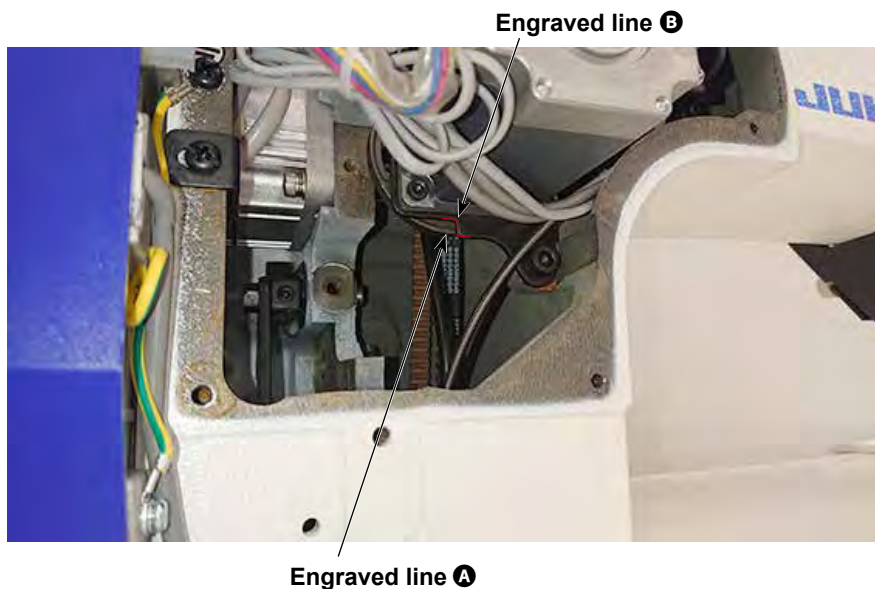
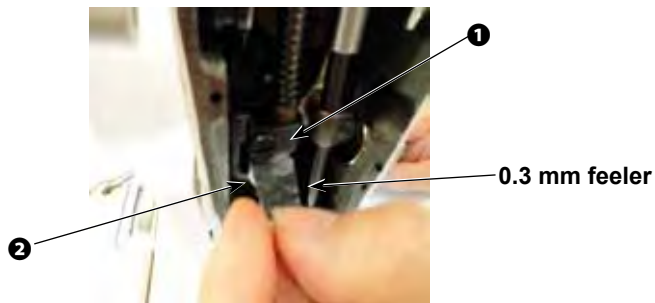
## (8) Adjustment of the origin of a presser lifter motor



### WARNING :

Be sure to turn the power OFF before the following work in order to prevent personal injury due to unintentional starting of the sewing machine.

### Standard adjustment



## Adjustment Procedure

### ① Assembly

1. Remove the face plate, and insert the 3mm feeler between the presser bar position bracket ❶ and lifting plate ❷.
2. Securely tighten three presser motor asm. setscrews ❿ while bringing cam roller ❶❹ and cam ❶❸ into light contact with each other.
3. Remove the AK cover 8A, loosen the setscrew ❸ on the sensor mounting plate, and tighten the setscrew ❸ in the center of the slot in the sensor mounting plate ❹.

### ② Assembly and adjustment

1. Turn on the power and step on the pedal to the 1st step, and the presser foot is lifted (to the origin height). Make sure that the origin height is 8.5 mm in height. The origin height is the distance between the top face of the throat plate and the lower face of the presser foot.
2. If the distance is largely deviated, turn off the power, loosen the setscrew ❸ on the sensor mounting plate, and adjust the position of the sensor mounting plate ❹.
  - To increase the presser rising amount, move it to the A side.
  - To decrease the presser rising amount, move it to the B side.
3. Tighten the setscrew ❸ on the sensor mounting plate.
4. Turn on the power again, and depress the back part of the pedal to the 1st step to lift the presser foot.
5. Make sure that the origin height is 8.5 mm in height. If the height is not 8.5 mm, repeat the steps 2 and 3.

**(Caution)** In some cases, an error occurs during origin search or regular operation after assembling according to the steps in " ② Assembly and adjustment". In such a case, the angle between the cam ❶❸ and presser motor shaft may be inappropriate. Adjust the angle between the cam ❶❸ and presser motor shaft so that the engraved line ❶❶ of the cam ❶❸ goes in the vicinity of the lowest point (not necessary to be the lowest point) at returning to the origin, and conduct the procedure from the step 1.

## (8) Adjustment of the origin of a presser lifter motor



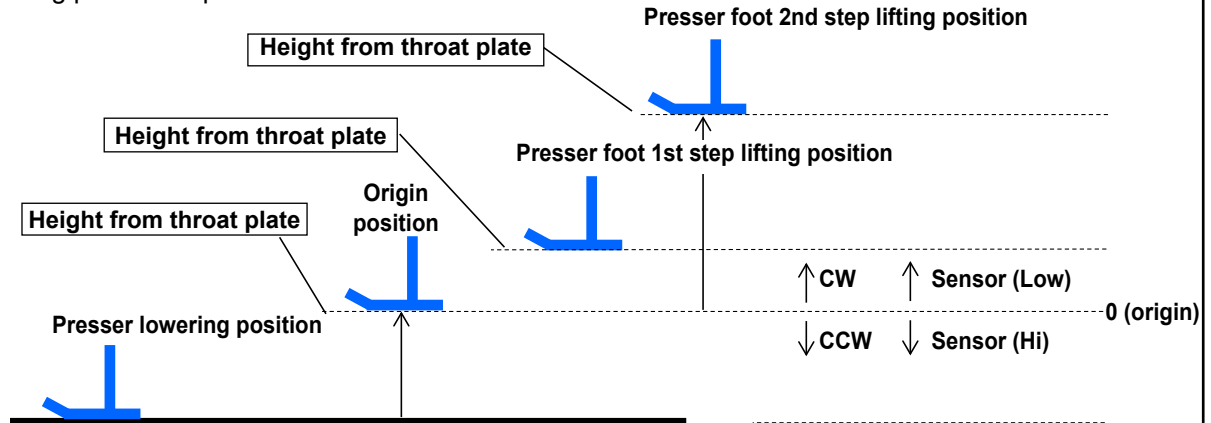
### **WARNING :**

Be sure to turn the power OFF before the following work in order to prevent personal injury due to unintentional starting of the sewing machine.

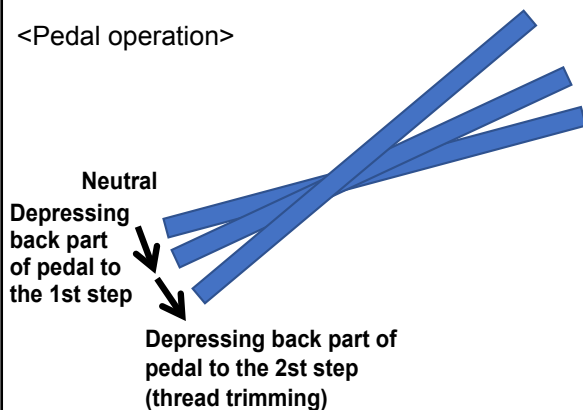
### **Standard adjustment**

#### **(Reference) Operating specification of DDL-8000A presser motor**

<Operating position of presser motor>



<Pedal operation>



#### **Presser foot 1st step lifting position**

- Presser foot lifting position when the sewing machine is stopped during sewing
- Presser position after depressing the back part of the pedal to the 2nd step and trimming the thread

#### **Presser foot 2nd step lifting position**

- Presser lifter at depressing the back part of the pedal to the 2nd step position (thread trimmer) again after completion of thread trimming

## Adjustment Procedure

### <Timing of origin search operation>

After the power is turned on, conduct origin search and move it to the presser foot 1st step lifting position or presser foot 2nd step lifting position when depressing the back part of the pedal to the 1st or 2nd step the first time.

## (9) Adjustment of the amount of feeding

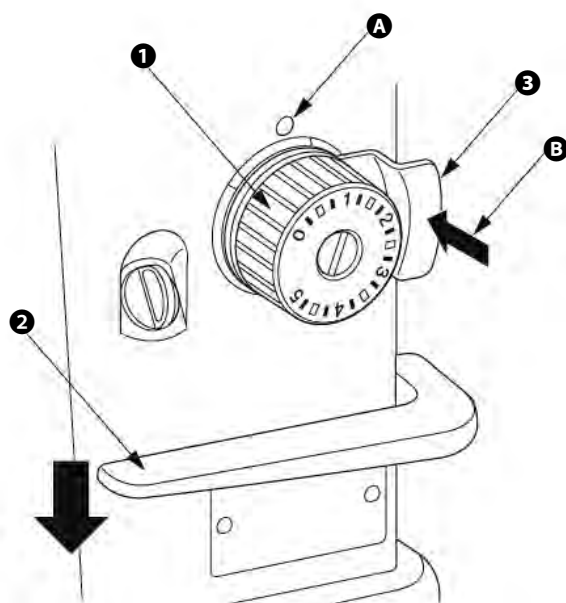


### **WARNING :**

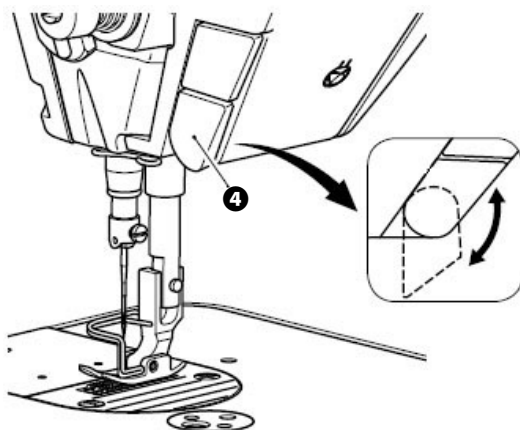
Be sure to turn the power OFF before the following work in order to prevent personal injury due to unintentional starting of the sewing machine.

### **Standard adjustment**

- 1) Adjustment of forward feed stitch length
- 2) Reverse feed stitch length check (manual)



- 3) Reverse feed stitch length check (electrically-operated)



| Adjustment Procedure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Results of Improper Adjustment |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| <p>* Figures on the graduations are indicated in the unit of mm.</p> <p><b>1) Adjustment of forward feed stitch length</b></p> <ol style="list-style-type: none"> <li>1. Turn the feed adjust dial ❶ in the direction of the arrow so that the required figure is adjusted to the engraved marker dot ❶ of the arm.</li> <li>2. When changing the feed graduation from high to low, turn the feed adjust dial ❶ while pressing the feed lever ❷ in the direction of the arrow and the feed adjust stopper ❸ in the direction of the arrow ❷ (arm rear side).</li> <li>3. When changing the feed graduation from low to high, turn the feed adjust dial ❶ while pressing the feed adjust stopper ❸ in the direction of the arrow ❷ (arm rear side).</li> <li>4. When the feed adjust stopper ❸ is released, the feed adjust dial ❶ is fixed .</li> </ol> <p><b>2) Reverse feed stitch length check (manual)</b></p> <ol style="list-style-type: none"> <li>1. Turn the feed adjust dial ❶ in the direction of the arrow so that the required figure is adjusted to the engraved marker dot ❶ of the arm.</li> <li>2. Reverse feed takes place when the feed lever ❷ is pressed. The status that the lever is pressed at the maximum corresponds to the graduation value of the feed adjust dial ❶ .</li> </ol> <p><b>3) Reverse feed stitch length check (electrically-operated)</b></p> <ol style="list-style-type: none"> <li>1. When the switch ❹ is pressed, the sewing machine assumes the condition of reverse feed. When this switch is released, the condition of forward feed is promptly recovered.</li> </ol> |                                |

## (9) Adjustment of the amount of feeding

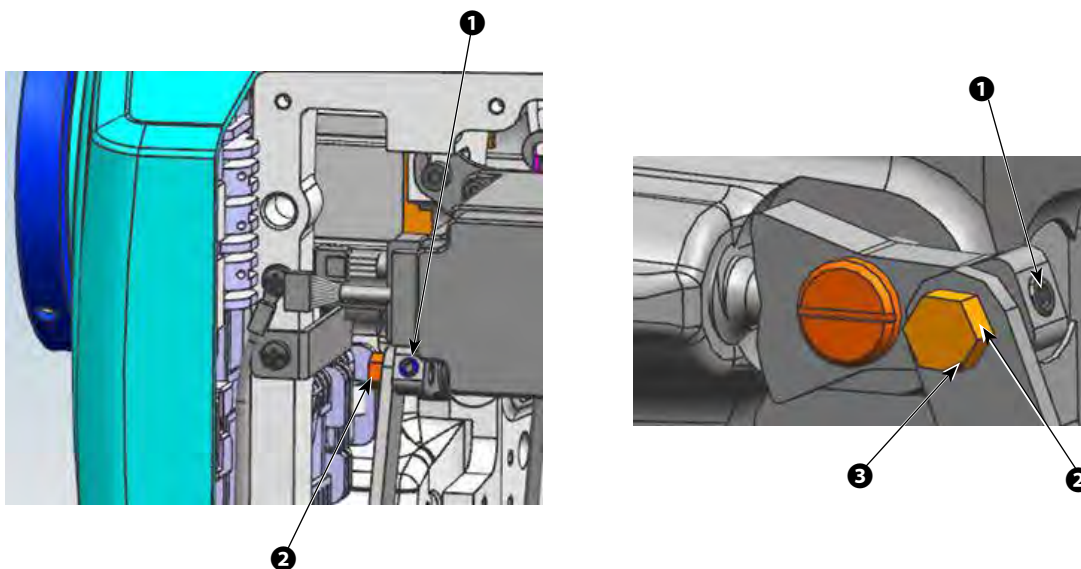


### WARNING :

Be sure to turn the power OFF before the following work in order to prevent personal injury due to unintentional starting of the sewing machine.

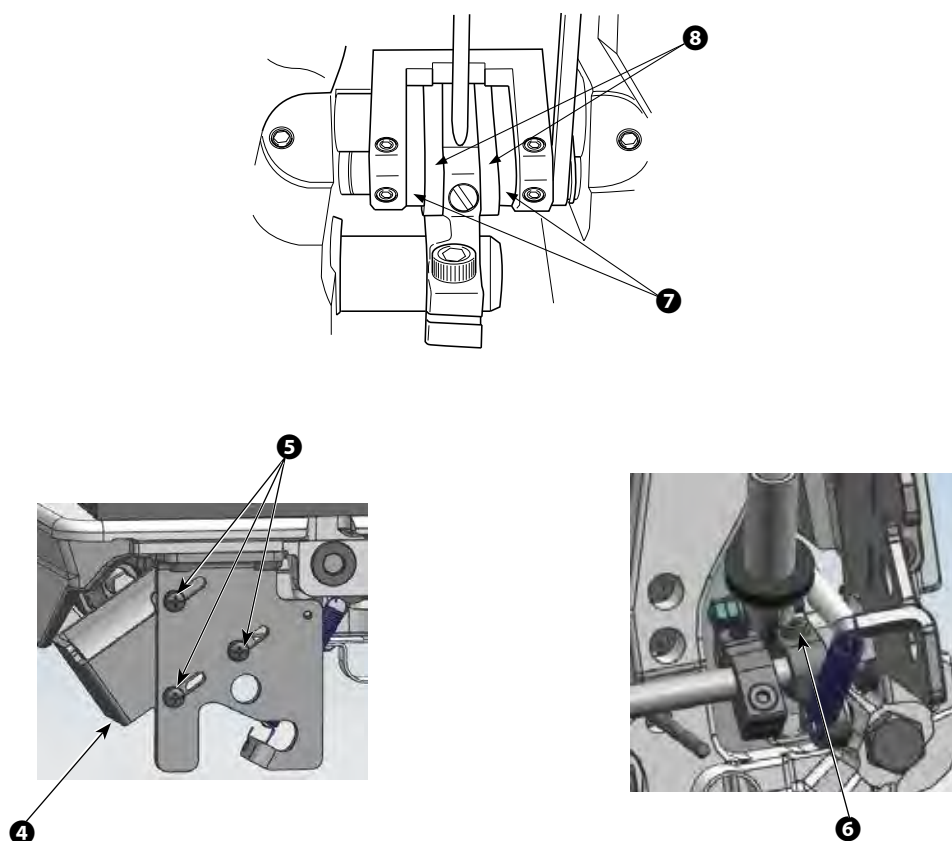
### Standard adjustment

#### 4) Adjustment of normal/reverse stitching



#### 5) Adjustment of Feed 0

Method by removing the gear box cover (standard adjustment)





## (9) Adjustment of the amount of feeding



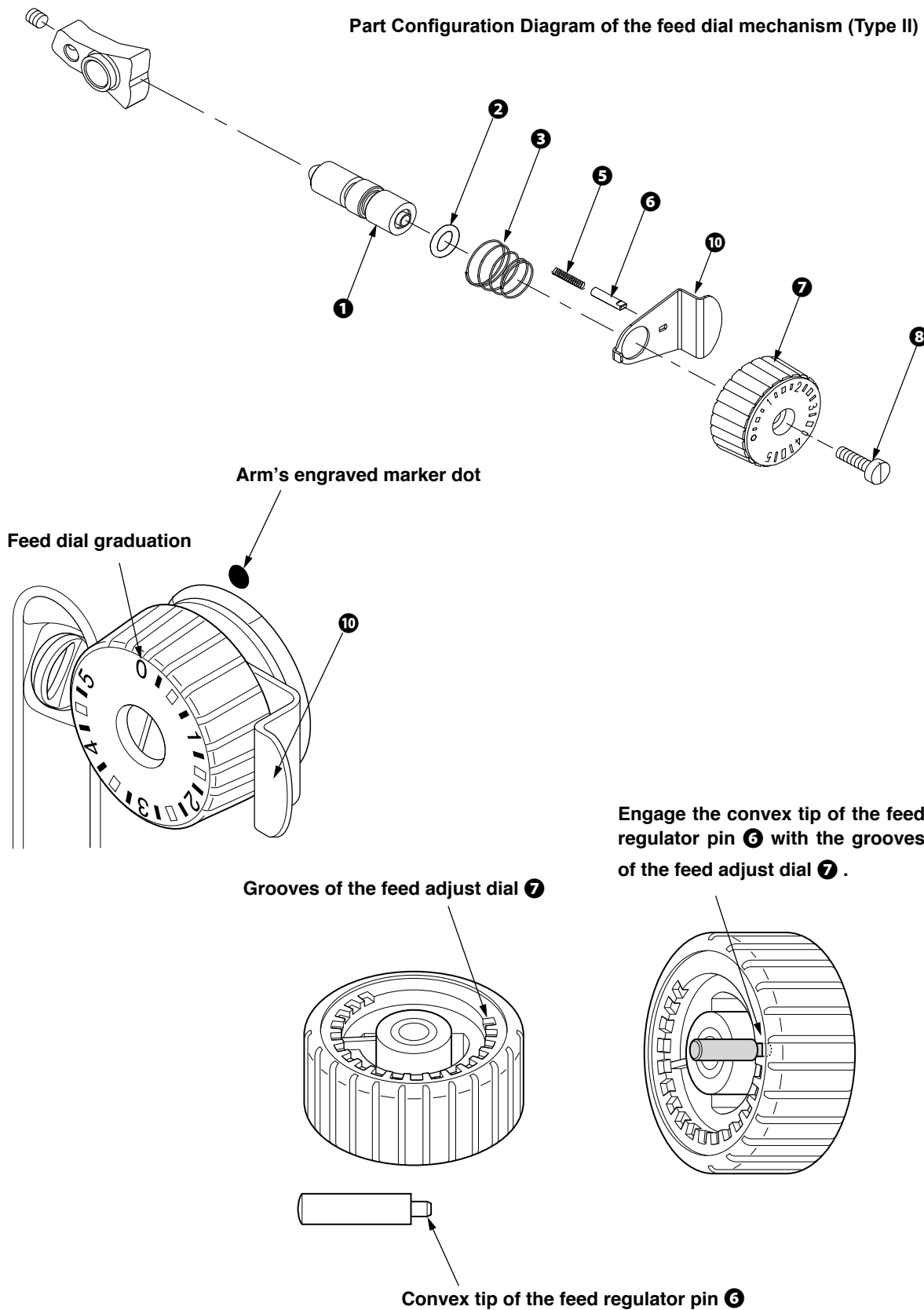
### **WARNING :**

Be sure to turn the power OFF before the following work in order to prevent personal injury due to unintentional starting of the sewing machine.

### **Standard adjustment**

#### **6) Adjustment of the feed dial section**

**Part Configuration Diagram of the feed dial mechanism (Type II)**



| Adjustment Procedure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Results of Improper Adjustment |                    |               |          |                                        |  |  |                |          |                    |                   |          |   |               |          |   |                                                                                                                                                                                        |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|--------------------|---------------|----------|----------------------------------------|--|--|----------------|----------|--------------------|-------------------|----------|---|---------------|----------|---|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>6) Adjustment of the feed dial section</div> <div>1. Apply appropriate grease to the groove section of the feed adjust screw ❶ and mount the O ring ❷ in the groove section.<br/>Information about the appropriate grease (Optional item)</div> <table><tr><td>Part name</td><td>Part No.</td></tr><tr><td>JUKI grease A</td><td>40006323</td></tr></table> <div>2. Set the feed adjust dial ❷ and the feed adjust screw ❶ together, and join them with the feed dial screw ❸ .</div> <div>3. Insert the joined feed adjust dial ❷ into the arm, and then remove the feed adjust dial ❷ by loosening the feed dial screw ❸ so that the feed adjust screw ❶ will not move.</div> <div>4. Insert the feed regulator pin spring ❹ and feed regulator pin ❺ into the arm, with its convex tip of the pin facing front.</div> <div>5. Set the larger diameter side of the feed regulator spring ❹ to the arm side, and attach the feed regulator stopper ❿ by engaging the small hole with the convex tip of the feed regulator pin ❺ . Also, make sure to engage the convex tip of the feed regulator pin ❺ with the grooves of the feed adjust dial ❷ .</div> <table><tr><th colspan="3">Feed dial of respective specifications</th></tr><tr><th>Specifications</th><th>Part No.</th><th>Maximum graduation</th></tr><tr><td>DDL-8000A*-MS, SH</td><td>40211459</td><td>5</td></tr><tr><td>DDL-8000A*-SJ</td><td>40218607</td><td>5</td></tr></table> <div>6. In the state that the feed dial graduation ● coincides with the engraved marker dot of the arm, join the feed dial screw ❸ with the feed adjust screw ❶ .</div> <div>(Cautions) After joint, confirm that the pitch is zero when the engraved marker ● of the arm is matched with the scale of the feed dial. .</div> | Part name                      | Part No.           | JUKI grease A | 40006323 | Feed dial of respective specifications |  |  | Specifications | Part No. | Maximum graduation | DDL-8000A*-MS, SH | 40211459 | 5 | DDL-8000A*-SJ | 40218607 | 5 | <div>○ If there is any displacement between the arm's engraved marker dot and the feed dial graduation, there is no coincidence between the dial graduation value and the pitch.</div> |
| Part name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Part No.                       |                    |               |          |                                        |  |  |                |          |                    |                   |          |   |               |          |   |                                                                                                                                                                                        |
| JUKI grease A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 40006323                       |                    |               |          |                                        |  |  |                |          |                    |                   |          |   |               |          |   |                                                                                                                                                                                        |
| Feed dial of respective specifications                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                |                    |               |          |                                        |  |  |                |          |                    |                   |          |   |               |          |   |                                                                                                                                                                                        |
| Specifications                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Part No.                       | Maximum graduation |               |          |                                        |  |  |                |          |                    |                   |          |   |               |          |   |                                                                                                                                                                                        |
| DDL-8000A*-MS, SH                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 40211459                       | 5                  |               |          |                                        |  |  |                |          |                    |                   |          |   |               |          |   |                                                                                                                                                                                        |
| DDL-8000A*-SJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 40218607                       | 5                  |               |          |                                        |  |  |                |          |                    |                   |          |   |               |          |   |                                                                                                                                                                                        |

**(9) Adjustment of the amount of feedin**

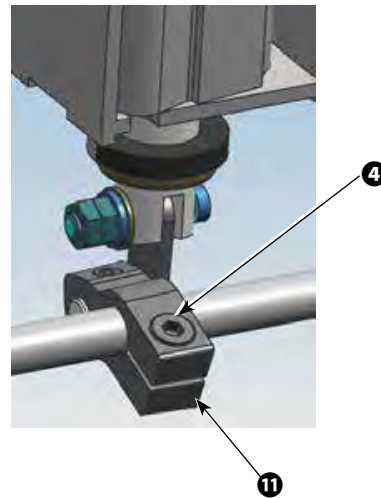
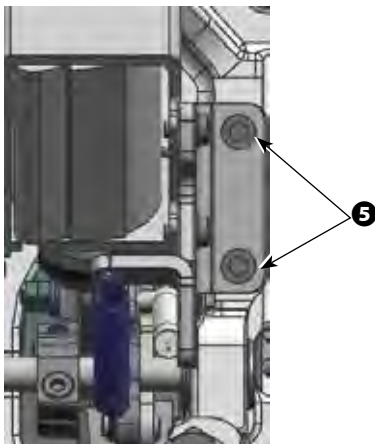
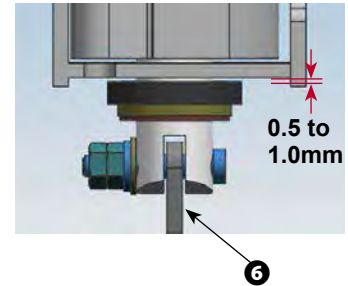
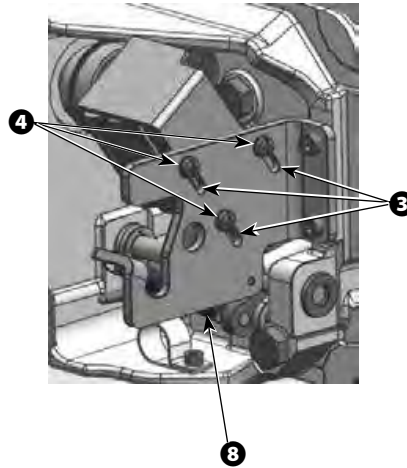
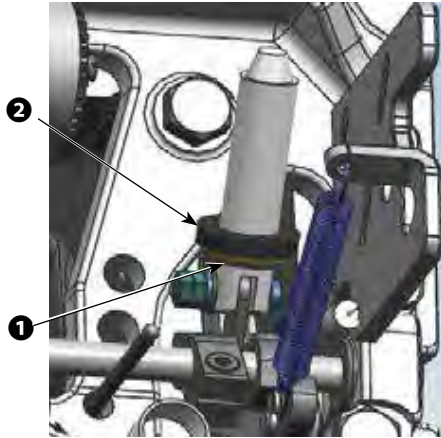


**WARNING :**

**Be sure to turn the power OFF before the following work in order to prevent personal injury due to unintentional starting of the sewing machine.**

### Standard adjustment

### 7) Installation of the reverse feed arm and the reverse feed solenoid



| Adjustment Procedure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Results of Improper Adjustment                                                                                                                                                                                                                                                                         |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>7) Installation of the reverse feed arm and the reverse feed solenoid</b></p> <ol style="list-style-type: none"> <li>1. Attach the washer ❶ and the rubber seat ❷ to the reverse feed solenoid plunger in this order.</li> <li>2. Install the reverse feed solenoid and temporarily fasten it with three each of setscrews ❸ and washers ❹ .<br/>In this case, confirm that the direction of the reverse feed arm ❶ is as shown in the illustration.</li> <li>3. Pull the reverse feed solenoid to your side and regularly fasten it with three setscrews ❸ in its utmost position.</li> <li>4. Adjust the feed dial to Graduation 5 and move the reverse feed arm so that the gap length becomes 0.5 to 1.0mm between the rubber sea ❷ and the reverse feed solenoid when the reverse feed lever is pulled to its limit position. In the position where the reverse feed link ❺ is positioned in the center of the reverse feed plunger groove, tighten the reverse feed arm setscrew ❷ .</li> <li>5. If the motion of the reverse feed plunger is not smooth, this may result from the tilting of the bed column B ❸ . Therefore, loosen the two setscrews ❺ and adjust the bed column B to stand upright on the bed. After adjustment, fix the two setscrews ❺ .</li> </ol> | <ul style="list-style-type: none"> <li>○ If the position of the reverse feed link ❺ is not precise, this may be a cause of abrasion and breakage.</li> <li>○ If the bed column B ❸ is tilted, the reverse feed solenoid cannot be pulled fully and the reverse feed pitch may be decreased.</li> </ul> |

## (10) Adjusting the needle thread presser device

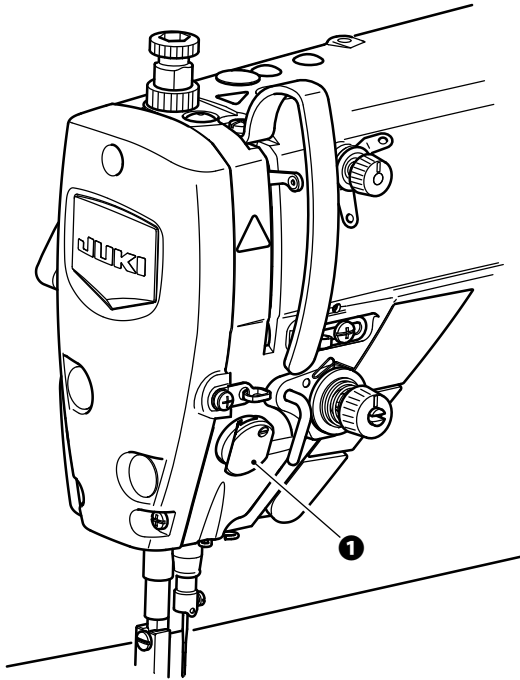


### **WARNING :**

Be sure to turn the power OFF before the following work in order to prevent personal injury due to unintentional starting of the sewing machine.

### **Standard adjustment**

#### **1) Needle thread presser device**



## Adjustment Procedure

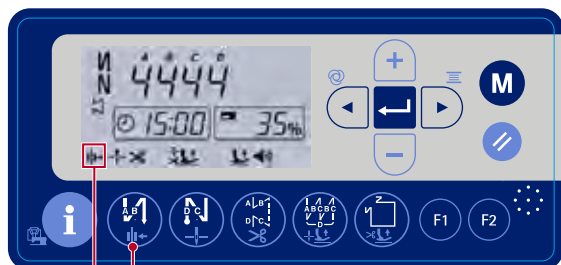
### 1) Needle thread presser device

[Feature]

Same as the conventional wiper device, it can tuck the needle thread on the back side of the material.

- Operability around the needle entry point is improved.
  - Applicability of various kinds of attachments designed for use around the needle entry point is improved.
- ① By operating the needle thread presser device ❶ and reducing the needle thread supply from the thread take-up, it is possible to lessen so-called “bird’s nest phenomenon” of the cloth lining.
  - ② Operability around the needle entry point is improved.
  - ③ Applicability of various kinds of attachments designed for use around the needle entry point is improved.

#### [How to set the needle thread presser device]



Display section C ❶

Keep thread presser operation enable / disable

switch ❶ held pressed to change over the ON/OFF of the thread presser.

When the thread presser device is set to ON, the thread presser icon is displayed on display section C.

## (10) Adjusting the needle thread presser device

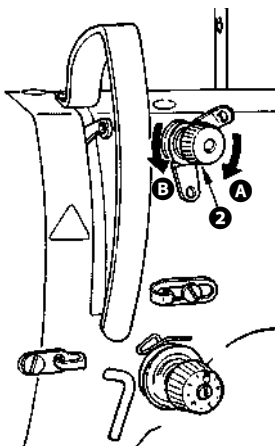


### WARNING :

Be sure to turn the power OFF before the following work in order to prevent personal injury due to unintentional starting of the sewing machine.

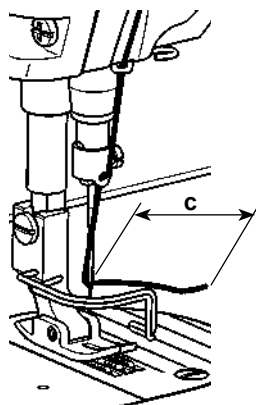
### Standard adjustment

#### 2) Adjusting the remaining length of needle thread

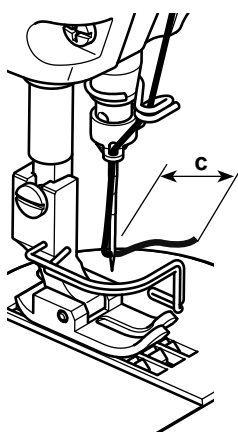


#### 3) Length of needle thread remaining at the needle

[MS type]



[SH (SJ) type]



c = 35 to 45mm

## Adjustment Procedure

### 2) Adjusting the remaining length of needle thread

Adjust the length of needle thread remaining at the needle by turning thread tension No. 1 nut ❷.

Turn thread tension No. 1 nut ❷ clockwise (in direction ❶), to shorten the thread length remaining on the needle after thread trimming or counterclockwise (in direction ❸), to lengthen the thread length.

### 3) Length of needle thread remaining at the needle

The needle thread length C dimensions of the S type and H type is 35 to 45mm.

- \* So-called "bird's nest phenomenon" is reduced by shortening the length of needle thread remaining at the needle. In this case, however, the needle thread is likely to slip off the needle eyelet. To reduce slip-off of the needle thread, sewing speed at the beginning of sewing should be reduced.

## (10) Adjusting the needle thread presser device



### **WARNING :**

Be sure to turn the power OFF before the following work in order to prevent personal injury due to unintentional starting of the sewing machine.

### **Standard adjustment**

#### **4) Response to problems occurring at the beginning of sewing**



4

| Adjustment Procedure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Results of Improper Adjustment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>4) Response to problems occurring at the beginning of sewing</div> <div><div><div>○ In the case needle thread breakage occurs when using a thin thread or fragile thread</div><div>○ In the case needle thread is not tucked on the wrong side of material</div><div>○ In the case needle thread breakage occurs when starting sewing from the material end (such as sewing the material with needle thread tucked on the undersurface of material)</div></div><div>If any of the aforementioned problems occurs, the assist function which works to reduce the presser foot pressure at the beginning of sewing can be set by using the auto-lifter device ④.</div><div>When P161 is set to "1", the assist function is activated.</div></div> | <div><div>○ If the automatic presser lifter ④ is not used, set the presser foot pressure to a lower level to make it easier for the thread between the presser and material to be sewed to come out. (The recommended presser foot pressure is 30 N (3 kg) or less.)</div><div>Adjust the presser foot pressure and the sewing speed appropriately to prevent insufficient feed efficiency due to jumping or other faults of the presser foot.</div><div>Confirm the adjustment result by actually sewing the material.</div></div> |

1. Press .

2. Press the   switch to select the item number in the table.

3. Press the   switch to activate the setting section, and press the   switch to adjust the value.

4. Press the  switch to determine your selection.

| No.  | Items                                                                      | Description                                                                                                                                         | Range    | Initial value |
|------|----------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|----------|---------------|
| P161 | Presser lifting operation at holding thread ON/ OFF                        | Selects ON or OFF of the presser lifting operation when the thread is held.<br>1 : Lifting operation activated<br>0 : Lifting operation deactivated | 0 to 1   | 0             |
| P162 | Angle at start of presser lifting operation starts when the thread is held | Sets the angle at the start of the presser lifting operation when the thread is held.                                                               | 0 to 359 | 100           |
| P164 | Setting of presser lifting amount at holding thread                        | Sets the amount of the presser lifting movement when the thread is held.                                                                            | 0 to 500 | 340           |
| P165 | Presser lifting operation time when the thread is held                     | Sets the presser lifting operation time when the thread is held.                                                                                    | 1 to 990 | 20            |

## (11) Adjusting the thread trimming unit

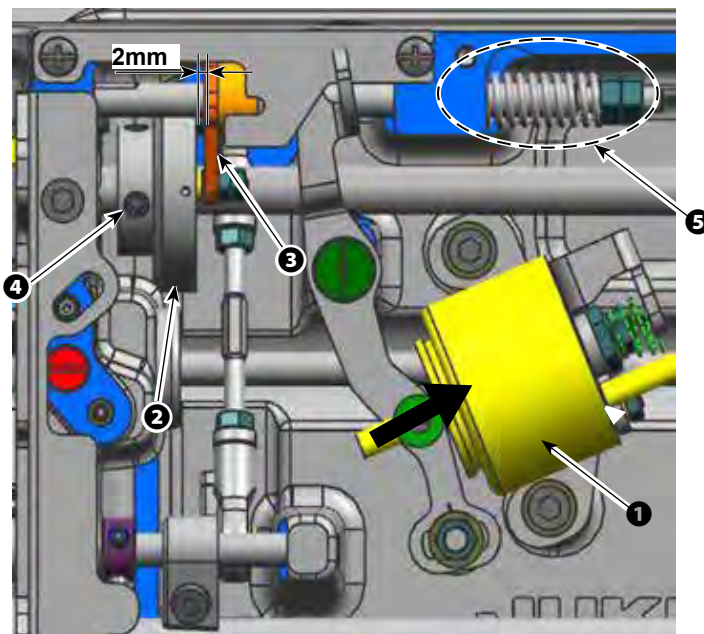


### WARNING :

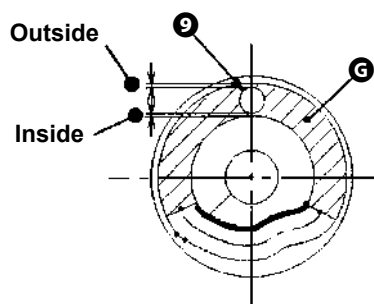
Be sure to turn the power OFF before the following work in order to prevent personal injury due to unintentional starting of the sewing machine.

### Standard adjustment

#### 1) Adjustment of the thread trimming cam position

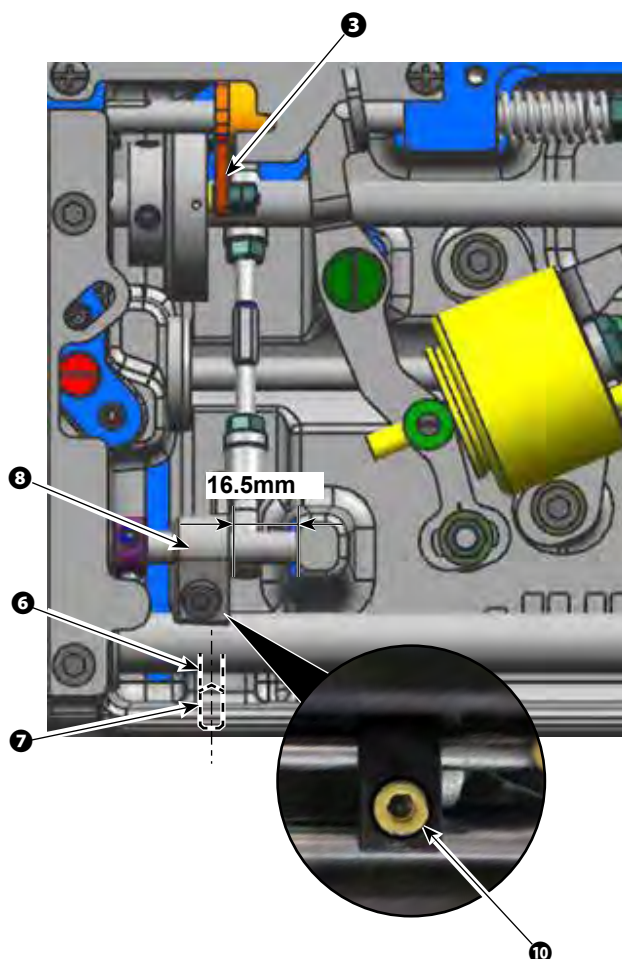


#### 2) Adjustment of the thread trimming link stopper screw



The screw tip is flat.  
(Thread trimming link stopper setscrew B)

The screw tip is pointed.  
(Thread trimming link stopper setscrew A)





## (11) Adjusting the thread trimming unit



### WARNING :

Be sure to turn the power OFF before the following work in order to prevent personal injury due to unintentional starting of the sewing machine.

### Standard adjustment

#### 3) Thread trimming cam timing

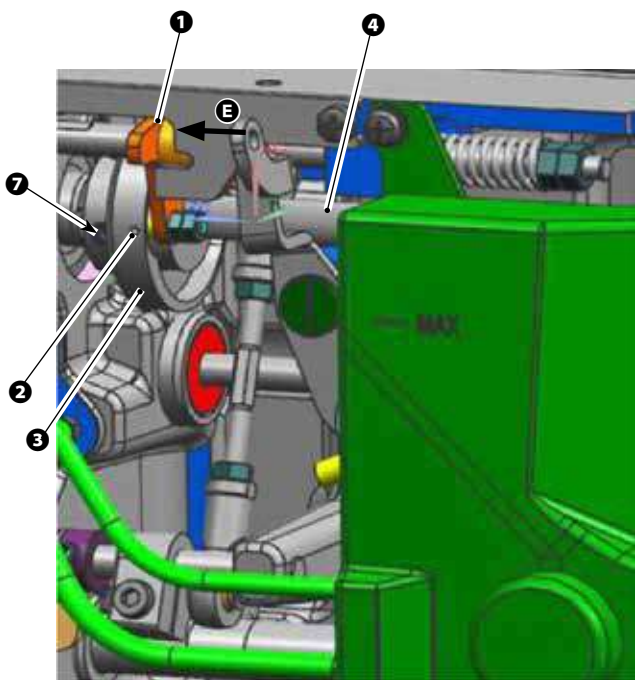
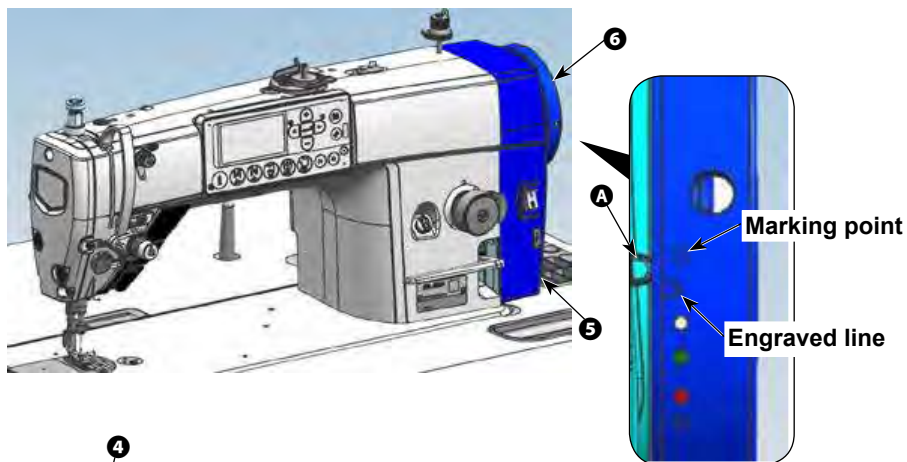
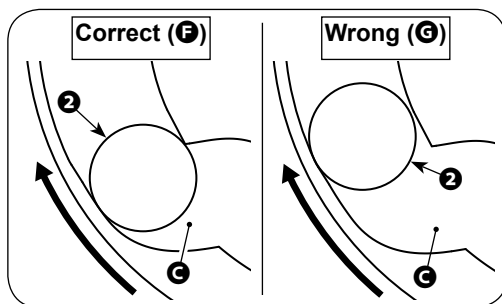
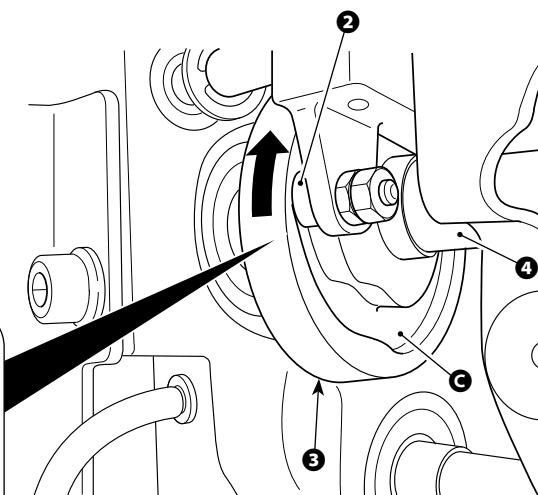


Illustration as observed from ① (right side face)



Turn thread trimming cam ③ in the direction of arrow until the outer periphery of thread trimming cam groove ⑤ comes in contact with roller ② and stops. At this position, fix thread trimming cam setscrew ⑦.

| Adjustment Procedure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Results of Improper Adjustment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>3) Thread trimming cam timing</b><br/> The aim of the thread trimming cam timing is matching the engraved line <b>A</b> of the control box with the colorless engraved line on the hard wheel <b>6</b> and the center of the colorless engraved dot.</p> <p><b>[1] For checking of the thread trimming cam timing</b></p> <ol style="list-style-type: none"> <li>1. Tilt the sewing machine head.</li> <li>2. Turn handwheel <b>6</b> by hand in the normal direction of rotation until the thread take-up lever goes up slightly below the upper dead point. Press cam follower <b>1</b> with fingers to the left (in direction of arrow <b>E</b>) and engage the roller <b>2</b> with the groove <b>C</b> of the thread trimming cam <b>3</b>.</li> <li>3. In this state, turn the handwheel <b>6</b> in the direction which is opposite to the normal direction of rotation until the handwheel <b>6</b> goes no further. (If the handwheel is turned further, it reaches the position at which cam follower <b>1</b> starts moving.)<br/> At this moment, match the engraved line <b>A</b> on the control box with the colorless engraved line on the hard wheel <b>6</b> and the center of the colorless engraved dot.</li> </ol> <p><b>[2] Adjustment of the thread trimming cam timing</b></p> <ol style="list-style-type: none"> <li>1. Tilt the sewing machine head.</li> <li>2. Loosen the screws No.1 and No. 2 of thread trimming cam setscrew <b>7</b> in the written order.</li> <li>3. Match the engraved line <b>A</b> on the control box with the colorless engraved line on the hard wheel <b>6</b> and the center of the colorless engraved dot.</li> <li>4. Pressing cam follower <b>1</b> to the left (in the direction of arrow <b>E</b>), engage thread trimming cam <b>3</b> with roller <b>2</b>. Then, turn only thread trimming cam <b>3</b> with fingers in the direction which is opposite to the normal direction of rotation of feed driving shaft <b>4</b> until it will go no further without turning feed driving shaft <b>4</b>. At this position, tighten the screws No. 1 and No. 2 of thread trimming cam setscrew <b>7</b> in the written order while pressing thread trimming cam <b>3</b> against roller <b>2</b>.</li> </ol> | <ul style="list-style-type: none"> <li>○ In the case of using a high-count filament thread, thread loop formation may be unstable. If faulty loop spreading occurs in this state, correct the thread trimming cam timing by aligning the marker line on the pulley cover with the red marker dot, instead of the green marker dot, on the handwheel.</li> <li>○ The alignment point between thread trimming cam <b>3</b> and roller <b>2</b> is position <b>(F)</b> from which cam follower <b>1</b> starts moving. It is not the position <b>(G)</b> at which you feel that the thread trimming cam <b>3</b> comes in contact with roller <b>2</b> for the first time.</li> </ul> <p>* Be sure to correct the thread trimming cam timing carefully since it largely affects the loop spreading timing.</p> |

## (11) Adjusting the thread trimming unit



### WARNING :

Be sure to turn the power OFF before the following work in order to prevent personal injury due to unintentional starting of the sewing machine.

### Standard adjustment

#### 4) Adjusting the knife unit

[1] For checking the knife unit



Fig.1

Standby state of the knife

- ① The position of the thread spreading knife and needle

The distance from the center of needle A to the tip of the thread spreading knife ① : 5.5 to 6.5mm

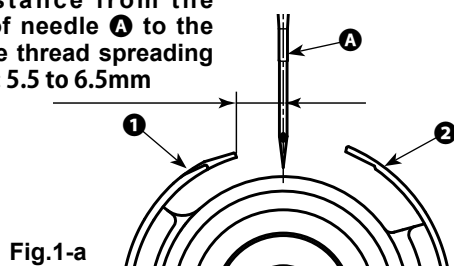


Fig.1-a

- ② The thread trimming shaft and the thread trimming drive arm

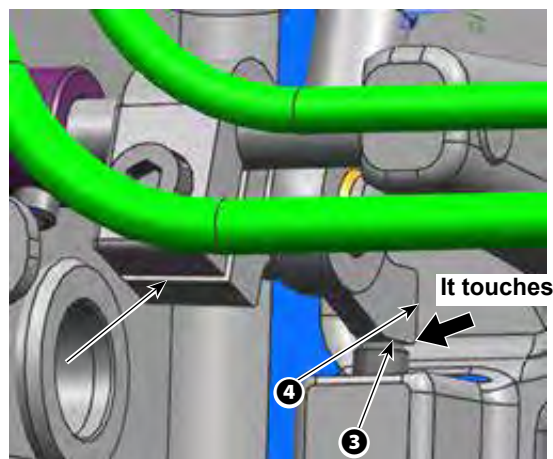


Fig.1-b

Far end of the hole in loop spreading knife

① aligns with the tip of thread trimming knife ②

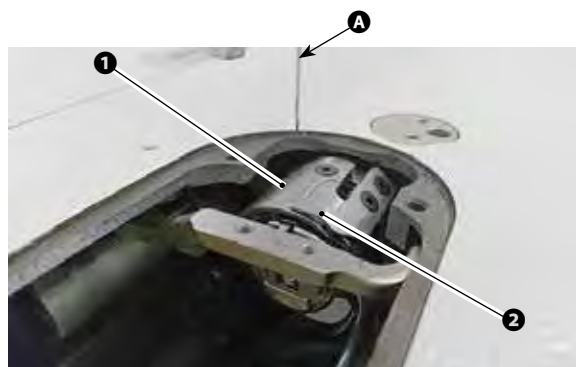
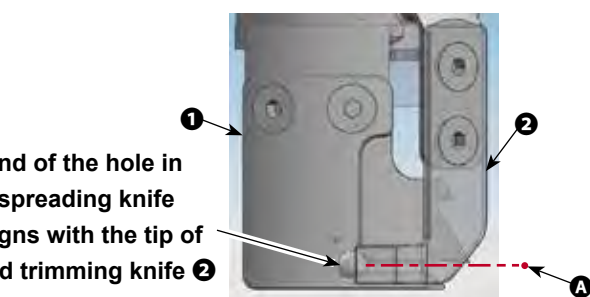


Fig.2

Aligning state of salient portion of loop spreading knife and thread trimming knife

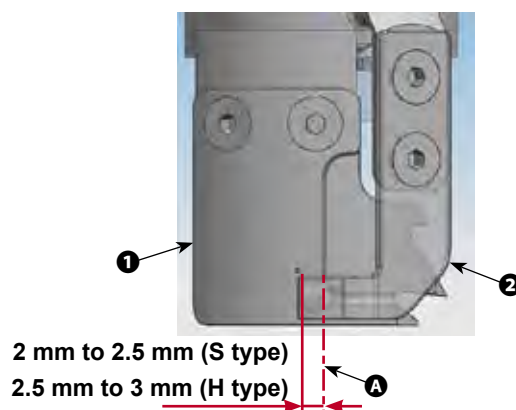


Fig.3

State of engagement of knife

| Adjustment Procedure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Results of Improper Adjustment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>4) Adjusting the knife unit</b></p> <p><b>[1] For checking the knife unit</b></p> <ol style="list-style-type: none"> <li>1. Check to make sure that the power switch is in the OFF state.<br/>Remove the gauge (presser foot, throat plate and feed dog) from around the needle.</li> <li>2. In the standby state of loop spreading knife ❶, the distance from center of needle ❶ to the tip of loop spreading knife ❶ is 5.5 to 6.5 mm. (Refer to Fig.1-a)</li> <li>3. At the time of 2, the thread trimming drive arm ❷ gets contact with the screw ❸.<br/>When there is a gap, loosen the screw ❸ and make the thread trimming drive arm ❷ keep in contact with the screw ❸ to tighten the screw ❸. (Refer to the Fig. 1-b.)</li> <li>4. The purpose of adjustment of the aligning position of loop spreading knife ❶ and thread trimming knife ❷ (far end of the hole in loop spreading knife ❶ and the tip of thread trimming knife ❷) is to align the aforementioned aligning position with center of needle ❶. (Refer to Fig.2)</li> </ol> <p>* There is seldom an actual margin of adjustment because it is used for the creak of the Phillips -head screw.</p> <ol style="list-style-type: none"> <li>5. The amount of engagement between loop spreading knife ❶ and thread trimming knife ❷ is S type : <math>2.0 \pm 2.5</math> mm, H type : 2.5 to 3.0 mm as measured from center of needle ❶. (Refer to Fig.3)</li> </ol> | <ul style="list-style-type: none"> <li>○ Be aware that, if the distance between loop spreading knife ❶ and center of needle ❶ is reduced, thread loop is likely to interfere with loop spreading knife ❶.</li> </ul> <p>* Refer to "3.-(11)-4)-[2]. Adjustment of the knife unit" for how to adjust it.</p> <ul style="list-style-type: none"> <li>○ Be aware that, if the aligning position of the loop spreading knife and the thread trimming knife does not align with center of needle ❶, the length of thread remaining on the material after thread trimming will be longer.</li> <li>○ Be aware that, if the amount of engagement between them is insufficient, faulty thread trimming can occur.<br/>Refer to "3.-(11)-4)-[2]. Adjustment of the knife unit" for how to adjust it.</li> <li>○ The needle thread may be trimmed excessively short in the case thread which is likely to cause unstable thread loop formation is used or thread trimming is carried out at a position where there is no material.</li> </ul> |

(11) Adjusting the thread trimming unit

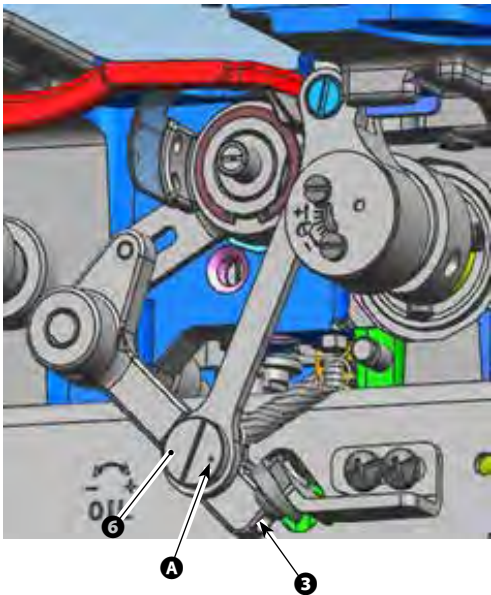


**WARNING :**  
Be sure to turn the power OFF before the following work in order to prevent personal injury due to unintentional starting of the sewing machine.

Standard adjustment

4) Adjusting the knife unit

[2] Adjustment of the knife unit



5) Adjustment of thread trimming speed

Memory switch

| No. | Item                         | Setting range | Initial value | Unit    |
|-----|------------------------------|---------------|---------------|---------|
| P49 | Thread trimming sewing speed | 100 to 500    | 210           | sti/min |
| P50 | Second thread trimming speed | 0 to 500      | 180           | sti/min |



## (11) Adjusting the thread trimming unit

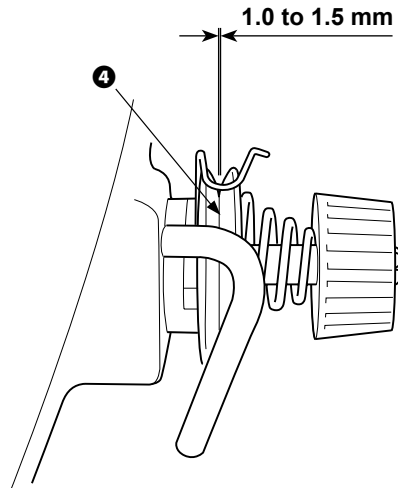


### **WARNING :**

Be sure to turn the power OFF before the following work in order to prevent personal injury due to unintentional starting of the sewing machine.

### **Standard adjustment**

#### **6) Adjustment of rise of the second thread tension disc**





## (11) Adjusting the thread trimming unit

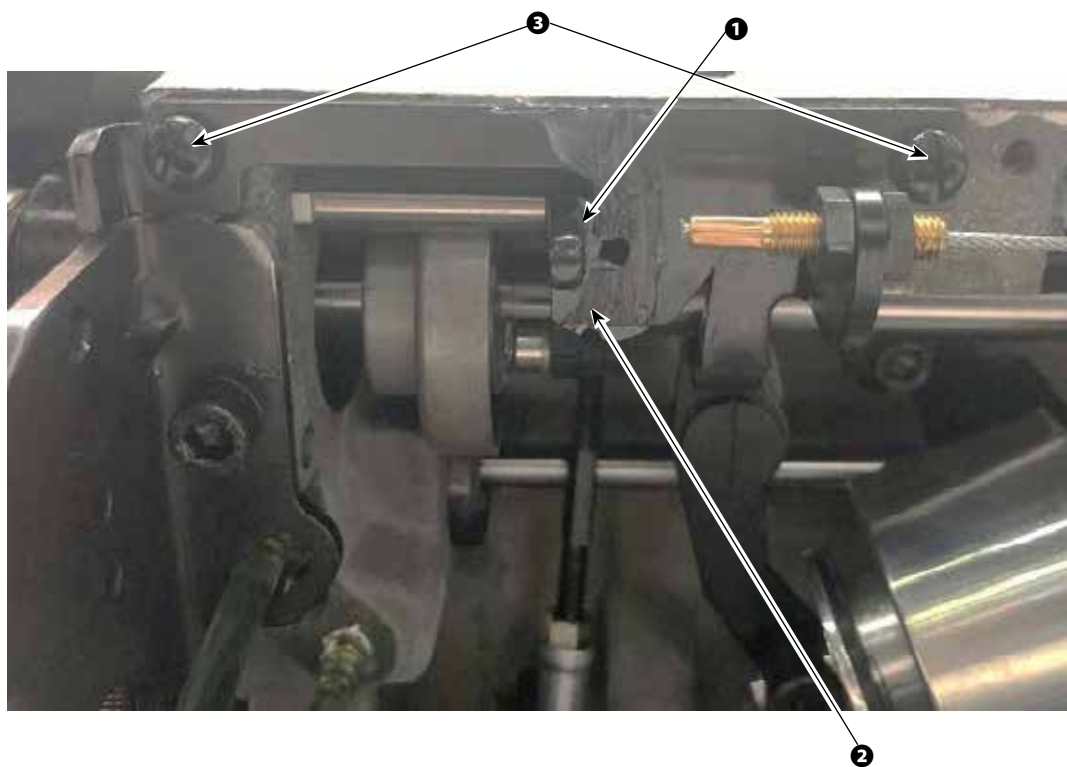


### **WARNING :**

Be sure to turn the power OFF before the following work in order to prevent personal injury due to unintentional starting of the sewing machine.

### **Standard adjustment**

#### **7) Adjustment of the driven part stopper**



| Adjustment Procedure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Results of Improper Adjustment |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| <p><b>7) Adjustment of the driven part stopper</b></p> <p>The driven part stopper ❷ is a safety device so that interference is prevented between the needle and the moving knife even though the roller comes off the thread trimming cam when any unexpected problem (such as a service interruption) occurs.</p> <ol style="list-style-type: none"> <li>1. In the state that the thread trimming device is not in action, adjust two driven part stopper setscrews ❸ so that the gap length becomes 0.3mm between the notch ❶ of the cam's driven part and the cam's driven part stopper ❷.</li> <li>2. Adjust two driven part stopper setscrews ❸ so that the gap length becomes 1mm between the notch ❶ of the cam's driven part and the cam's driven part stopper ❷ when the thread trimming solenoid ❹ is moved in the direction of the arrow.</li> </ol> |                                |

## (11) Adjusting the thread trimming unit

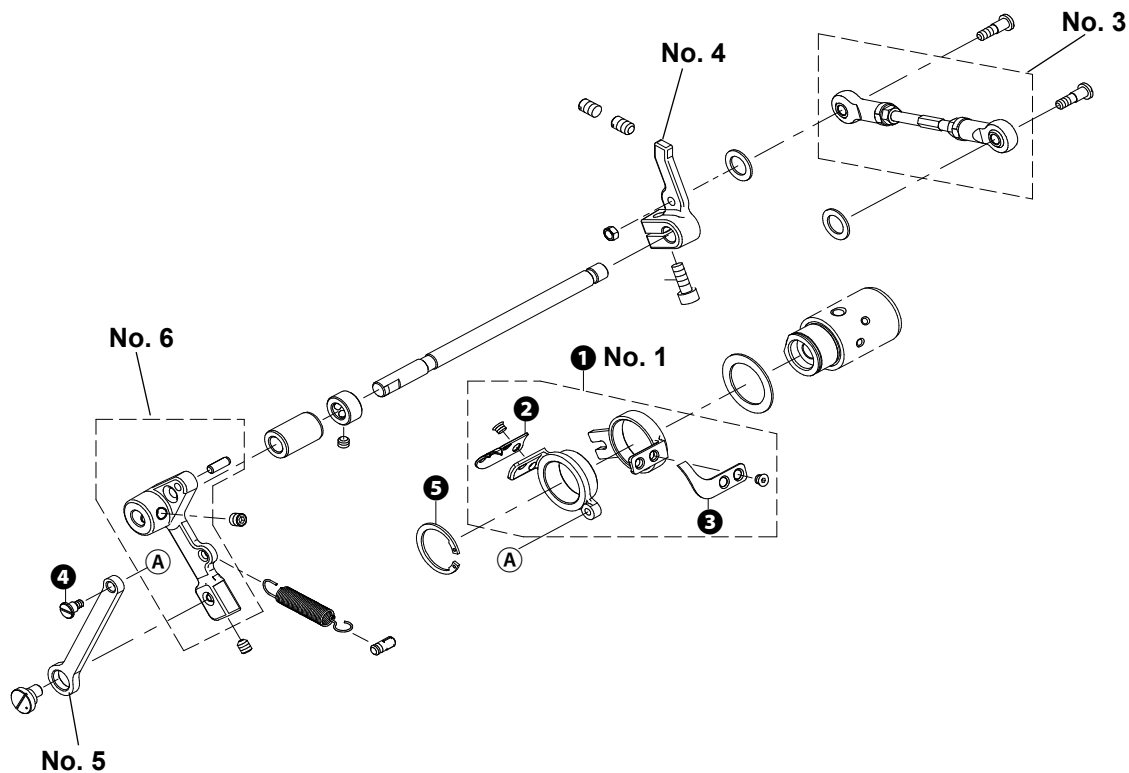


### WARNING :

Be sure to turn the power OFF before the following work in order to prevent personal injury due to unintentional starting of the sewing machine.

### Standard adjustment

#### 8) Replacement of the knife unit



|                       | Knife unit <b>1</b> | Handling device knife <b>2</b> | Thread trimmer knife <b>3</b> |
|-----------------------|---------------------|--------------------------------|-------------------------------|
|                       | Part No             | Part No.                       | Part No.                      |
| DDL-8000A*-MS, SH, SJ | 40211087            | 40195289                       | 40195552                      |

| Adjustment Procedure                                                                                                                                                                                                                                                                                                                                                                                                                                              | Results of Improper Adjustment |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| <p><b>8) Replacement of the knife unit</b><br/> <b>[Method of replacement]</b></p> <ol style="list-style-type: none"> <li>1. Let the sewing machine fall down.</li> <li>2. Remove the needle, hook, and the inner hook presser.</li> <li>3. Remove the moving knife link stepped screw ❹.<br/> * Apply the LOCKTITE 243 on a screw at the time of recombination.</li> <li>4. Remove the C ring ❺.</li> <li>5. Remove the female unit ❶ from the metal.</li> </ol> |                                |

## (11) Adjusting the thread trimming unit

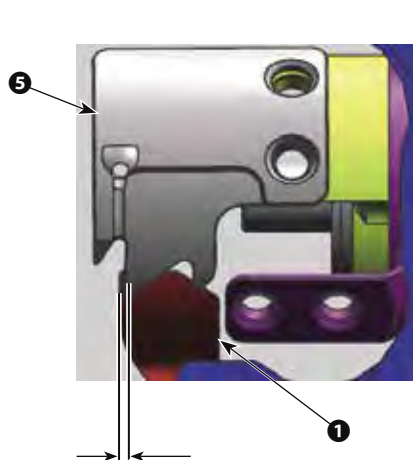
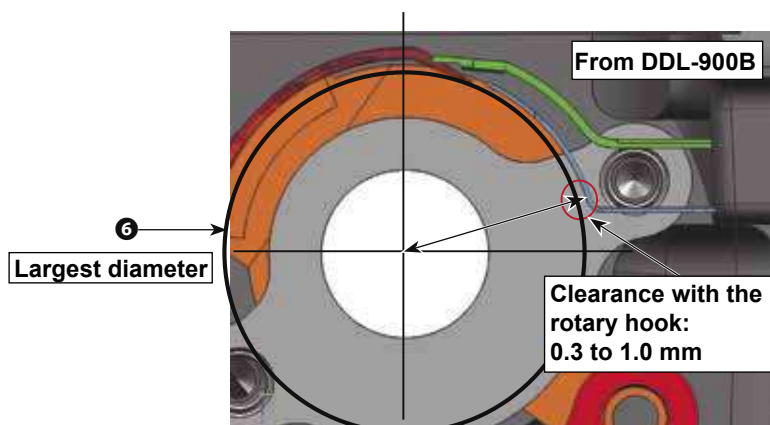


### WARNING :

Be sure to turn the power OFF before the following work in order to prevent personal injury due to unintentional starting of the sewing machine.

### Standard adjustment

#### 9) Installation of thread spreading plate



The distance from the left end of the thread spreading knife tip to the left end of the thread spreading plate shall be 0 to 0.5 mm.



The position of the thread spreading plate shall be on the rear side of the thread spreading knife.

When the thread spreading knife is moved to the maximum forward position, the tip of the thread spreading plate shall not interfere with the thread spreading knife.

| Adjustment Procedure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Results of Improper Adjustment                                                                                                                                                                                                                                                                                                                                                                          |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>9) Installation of thread spreading plate</b></p> <ol style="list-style-type: none"> <li>1. Set the thread spreader ❶ to fit the groove on machine bed in the direction of the figure, temporarily fix it using the setscrew ❷.</li> <li>2. Adjust the position of thread spreader ❶ so that the clearance between the bending portion of thread spreader ❶ and the largest diameter of the outer periphery of the hook ❸ becomes 0.3 to 1.0 mm (at the smallest clearance position when rotating the hook ❸: approximately 17.9 to 19.1 mm). Then, tighten setscrew ❷. (Tightening torque : 1.96 to 2.94 N·m)</li> </ol> <p><b>(Caution) The distance between the left end of the tip of the thread spreading knife ❹ and the left end of the thread spreader ❶ shall be in the range between 0 mm and 0.5 mm.</b></p> <ol style="list-style-type: none"> <li>3. Make sure that there is no interference by rotating the hook ❸. Make sure that the thread spreading knife ❹ enters between the thread trimming knife ❺ and the thread spreader ❶ by rotating the thread spreading knife ❹.</li> </ol> <p><b>(Caution) 1. The outer periphery of the hook ❸ is not uniform. So adjust at the smallest clearance position.</b></p> <ol style="list-style-type: none"> <li>2. When making an adjustment or checking the clearance, conduct the work with the throat plate detached.</li> <li>3. Secure the inner hook holder ❺ first, and then adjust the thread spreader ❶.</li> </ol> | <ul style="list-style-type: none"> <li>○ If the clearance is too small, the hook ❸ interferes with the thread spreader ❶. As a result, noise and scratching to the hook may occur. Also, the needle thread may be caught causing insufficient tightness of the needle thread.</li> <li>○ If the clearance is too large, a thread spreading failure may occur at the time of thread trimming.</li> </ul> |

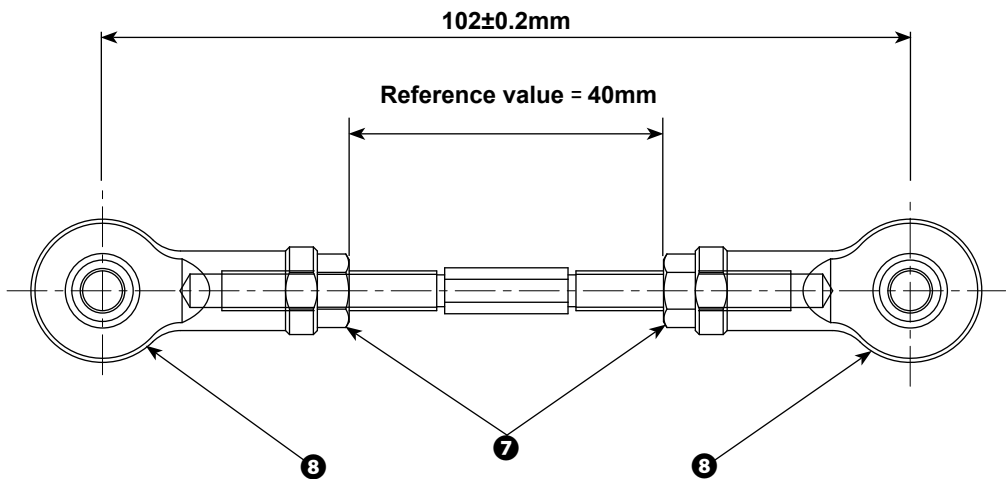
(11) Adjusting the thread trimming unit



**WARNING :**  
Be sure to turn the power OFF before the following work in order to prevent personal injury due to unintentional starting of the sewing machine.

Standard adjustment

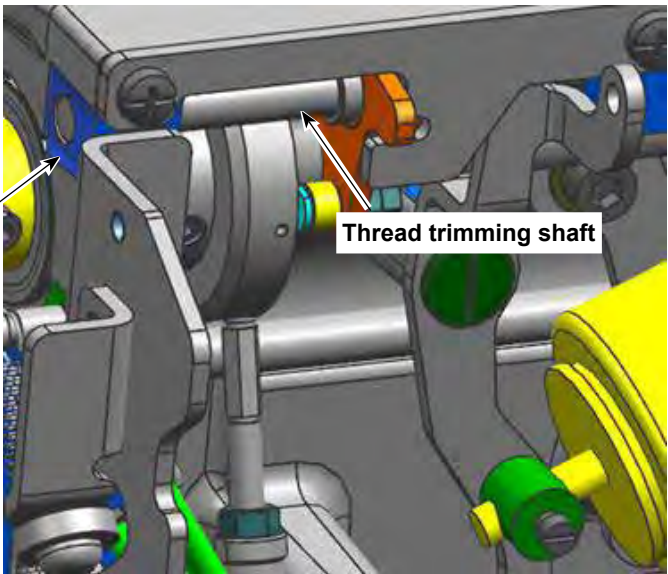
10) Installed length of the thread trimmer connector bar (asm.)



|                       | Connecting rod (asm.)<br>Part No. | Connecting rod (asm.)<br>dimension |
|-----------------------|-----------------------------------|------------------------------------|
| DDL-8000A*-MS, SH, SJ | 40174323                          | 102±0.2mm                          |

11) Installation position of the thread trimming shaft

The edge of the thread trimming shaft is matched with the edge of the bed.





## (12) Adjustment of external parts



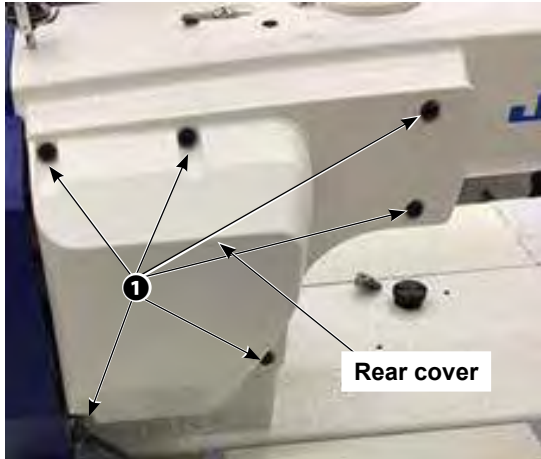
### **WARNING :**

Be sure to turn the power OFF before the following work in order to prevent personal injury due to unintentional starting of the sewing machine.

### **Standard adjustment**

#### **1) How to remove the control box**

1.



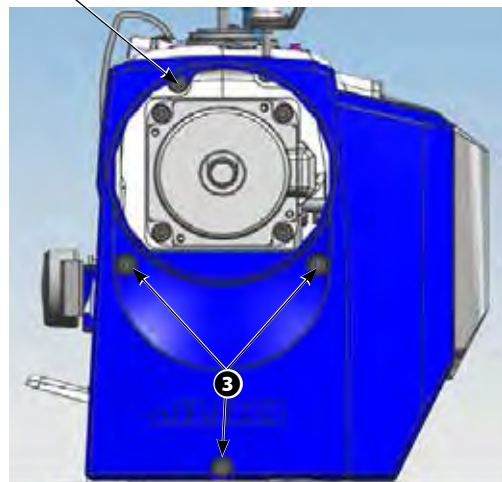
2.



3.



4. **2**



| Adjustment Procedure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Results of Improper Adjustment |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| <p><b>1) How to remove the control box</b></p> <ol style="list-style-type: none"> <li>1. Remove all the setscrews ❶ from the rear cover.</li> <li>2. Remove all the connectors connected to the control box.</li> <li>3. Remove the earth cable connected to the head. <ul style="list-style-type: none"> <li>* If the screwdriver tip is not inserted fully in the slot, the flange part of the upper sprocket is deformed or destroyed.</li> </ul> </li> <li>4. Remove the setscrews ❷ and ❸ from the control box.<br/>Screw part number<br/>❷ : SL4052591SC L=25<br/>❸ : SL4051691SC L=16</li> <li>5. Assembly can be conducted by the reversed procedure.</li> </ol> <p><b>(Cautions) Pay attention not to catch cords at the installation of the control box.</b></p> |                                |

## (12) Adjustment of external parts

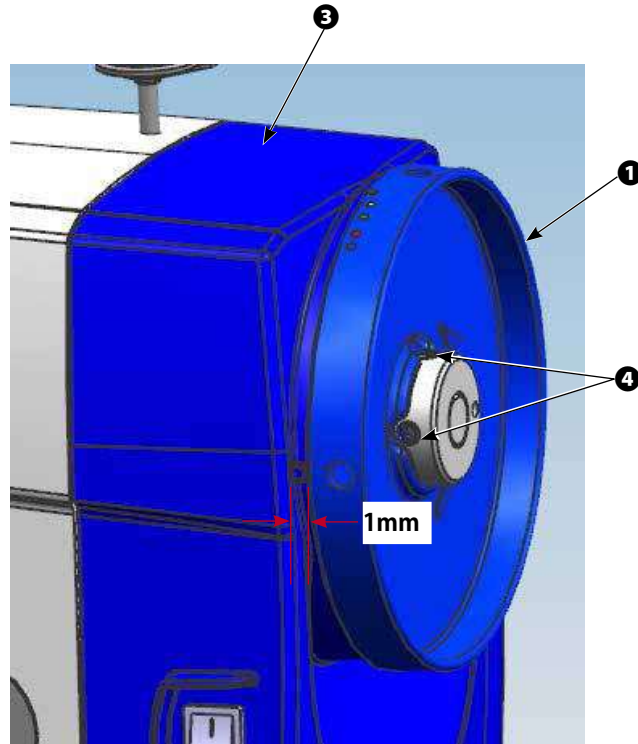


### **WARNING :**

Be sure to turn the power OFF before the following work in order to prevent personal injury due to unintentional starting of the sewing machine.

### **Standard adjustment**

#### **2) Clearance of the hand wheel**



| Adjustment Procedure                                                                                                                                                                   | Results of Improper Adjustment                                                                                         |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
| <p><b>2) Clearance of the hand wheel</b></p> <p>1. The clearance between the hand wheel ❶ and control box is 1 mm.<br/>For adjustments, loosen the hand wheel setscrews ❷ (2 pcs.)</p> | <p>○ If a clearance is too much, this can be a possible cause of entanglement of the thread from the thread stand.</p> |

## (12) Adjustment of external parts

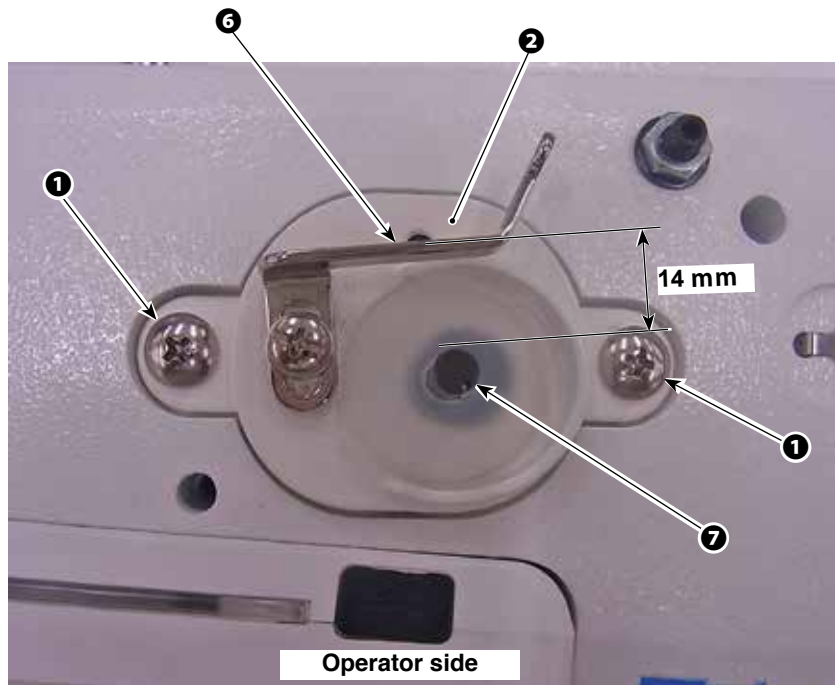


**WARNING :**

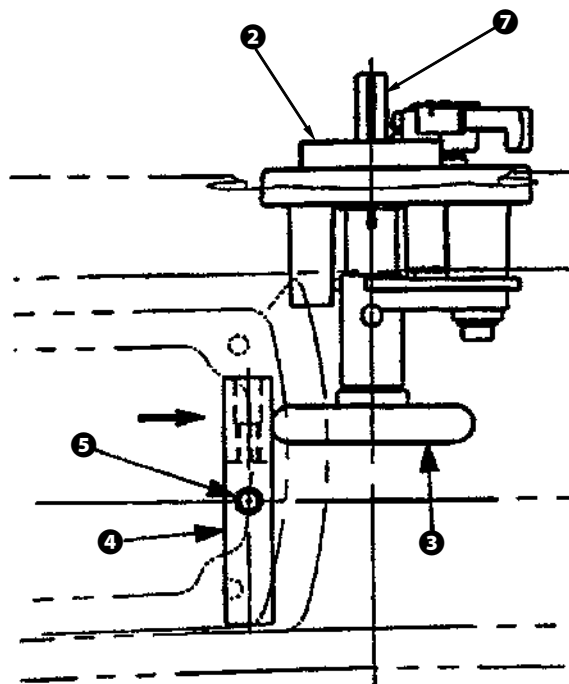
**Be sure to turn the power OFF before the following work in order to prevent personal injury due to unintentional starting of the sewing machine.**

### Standard adjustment

### 3) Adjustment of the bobbin winder unit



In the state of OFF, the standard distance of the bobbin winder lever ⑥ is 14mm from the bobbin winder shaft ⑦ .



| Adjustment Procedure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Results of Improper Adjustment |  |          |          |                                                                                                     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|--|----------|----------|-----------------------------------------------------------------------------------------------------|
| <p><b>3) Adjustment of the bobbin winder unit</b></p> <p>In regard to adjustments of the bobbin winder amount and winder imbalance, refer to the relevant instruction manual.</p> <p>In this manual, descriptions are provided in regard to problems of winder shaft revolution errors.</p> <p><b>1. Replacement of the bobbin friction wheel</b></p> <ol style="list-style-type: none"> <li>1. Remove two bobbin winder unit setscrews ❶.</li> <li>2. Take out the bobbin winder unit ❷.</li> <li>3. Confirm if there is extreme wearing out in the rubber section of the bobbin winder friction wheel ❸.</li> </ol> <p>If the amount of wearing out seems to be too much, replace the worn-out section with a new one.</p> <table border="1" data-bbox="387 875 791 965"> <tr> <td colspan="2" data-bbox="387 875 547 920">Bobbin winder friction wheel ❸</td></tr> <tr> <td data-bbox="387 920 547 965">Part No.</td><td data-bbox="547 920 791 965">40191114</td></tr> </table> <p><b>2. Adjustment of the bobbin winder driver wheel position</b></p> <ol style="list-style-type: none"> <li>1. Remove the window plate from the rear side of the arm.</li> <li>2. Loosen the bobbin winder driver wheel setscrews ❺ (2 pcs.) of the bobbin winder driver wheel ❹.</li> <li>3. Mount the bobbin winder unit ❷ on the arm.</li> <li>4. Turn ON the bobbin winder lever ❻ and let the head ❶ coincide with the bobbin winder lever ❻.</li> </ol> <p>At that time, the head ❶ of the bobbin winder unit setscrew shall be made to coincide with the bobbin winder lever ❻.</p> <ol style="list-style-type: none"> <li>5. Lightly make the bobbin winder driver wheel ❹ lightly contact with the bobbin winder friction wheel ❸ and tighten two bobbin winder driver wheel setscrews ❺.</li> </ol> <p><b>(Cautions)</b></p> <ol style="list-style-type: none"> <li>1. When the bobbin winder lever ❻ is turned OFF, turn the hand wheel by hand and confirm that the bobbin winder shaft ❼ does not turn.</li> <li>2. Never apply grease or such an oily component to the rubber section of the bobbin winder friction wheel ❸. Otherwise, this can be a cause of friction.</li> </ol> | Bobbin winder friction wheel ❸ |  | Part No. | 40191114 | <p>○ If the hand wheel is turned in the state of OFF, this can be a cause of abnormal abrasion.</p> |
| Bobbin winder friction wheel ❸                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                |  |          |          |                                                                                                     |
| Part No.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 40191114                       |  |          |          |                                                                                                     |

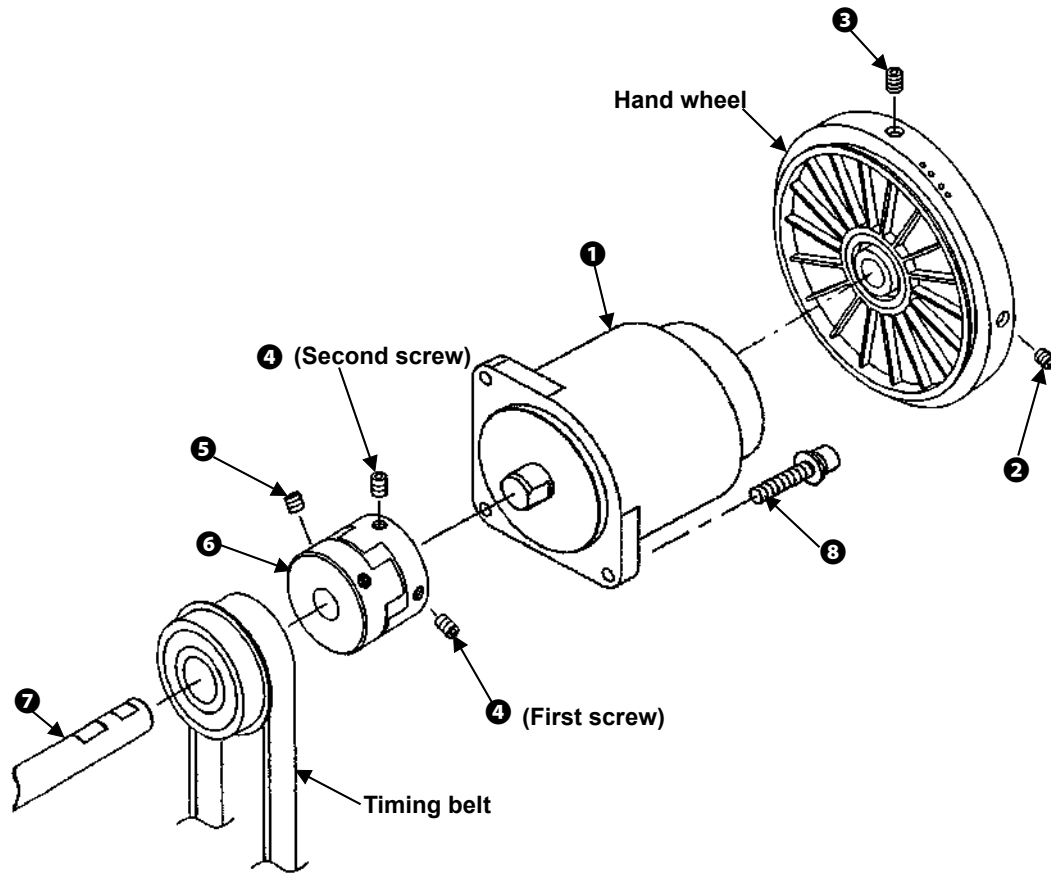
### (13) Replacement of the main motor



**WARNING :**

Be sure to turn the power OFF before the following work in order to prevent personal injury due to unintentional starting of the sewing machine.

#### Standard adjustment



### (14) Replacement of the timing belt



**WARNING :**

Be sure to turn the power OFF before the following work in order to prevent personal injury due to unintentional starting of the sewing machine.

#### Standard adjustment



| Adjustment Procedure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Results of Improper Adjustment |          |         |          |                |          |                                                                                                                                                                                               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|----------|---------|----------|----------------|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>The following is the method of replacement when the motor ❶ is out of order.</p> <ol style="list-style-type: none"> <li>1. Remove the second setscrew ❷ of the hand wheel. (4mm hexagonal)</li> <li>2. Remove the first setscrew ❸ (flat section) of the hand wheel. (4mm hexagonal)</li> <li>3. Remove the control box.<br/>Refer to "3.-(12)-1) How to remove the control box".</li> <li>4. Remove the window plate located behind the arm.</li> <li>5. Loosen two coupling setscrews B ❹ (motor side) from the rear side, in the order of the second screw and first screw (flat section). (3mm hexagonal)</li> </ol> <p><b>(Cautions)</b>1. No adjustments are required for the two coupling setscrews A ❺.</p> <p>2. For the removal of the coupling asm ❻, loosen two coupling setscrews A ❺ used to fasten the main shaft ❼. A clearance of 0.5mm shall be secured between the motor ❶ and the coupling asm ❻.</p> <p>3. Do not disassemble the coupling asm ❻.</p> <ol style="list-style-type: none"> <li>6. Remove (four) motor setscrews ❸. (Examine motor installations and the revolving direction.)</li> <li>7. Pull out the motor ❶ gently from the coupling asm ❻.</li> <li>8. Carefully install a new motor ❶ in the mounting position in correct revolving direction.</li> </ol> <table border="1"> <tr> <th>Description</th><th>Part No.</th></tr> <tr> <td>Motor ❶</td><td>40211082</td></tr> <tr> <td>Coupling asm ❻</td><td>40172398</td></tr> </table> <ol style="list-style-type: none"> <li>9. In the procedures below, reassembly can be carried out in the reverse order for disassembly.</li> </ol> | Description                    | Part No. | Motor ❶ | 40211082 | Coupling asm ❻ | 40172398 | <ul style="list-style-type: none"> <li>○ If no clearance is secured, this can be a cause of motor bearing destruction.</li> <li>○ After disassembly, reproducibility will be lost.</li> </ul> |
| Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Part No.                       |          |         |          |                |          |                                                                                                                                                                                               |
| Motor ❶                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 40211082                       |          |         |          |                |          |                                                                                                                                                                                               |
| Coupling asm ❻                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 40172398                       |          |         |          |                |          |                                                                                                                                                                                               |

| Adjustment Procedure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Results of Improper Adjustment                                                                                                                                                                                                                                                                                                  |             |          |               |          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------|---------------|----------|
| <p>The timing belt ❶ used is a product of the highest quality. Therefore, no maintenance is required.</p> <p>To make ready for responding to extra occasions, the method of replacement is explained below.</p> <ol style="list-style-type: none"> <li>1. Refer to "3.-(13) Replacement of the main motor" and dismantle the motor.</li> </ol> <p><b>(Caution) It is unnecessary to dismantle the coupling.</b></p> <ol style="list-style-type: none"> <li>2. Turn the motor by shifting the timing belt ❶ by hand in the direction of the arrow.</li> <li>3. Further reassembly work can be done in the reverse procedures for disassembly.</li> <li>4. Adjust the timing between the needle and hook blade point by referring "3.-(2) Relationship between the needle and hook".</li> </ol> | <table border="1"> <tr> <th>Description</th><th>Part No.</th></tr> <tr> <td>Timing belt ❶</td><td>40086731</td></tr> </table> <ul style="list-style-type: none"> <li>○ When removing the timing belt ❶, be careful not to hurt it with a sharp tool like a screwdriver. Otherwise, this will be a cause of breakage.</li> </ul> | Description | Part No. | Timing belt ❶ | 40086731 |
| Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Part No.                                                                                                                                                                                                                                                                                                                        |             |          |               |          |
| Timing belt ❶                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 40086731                                                                                                                                                                                                                                                                                                                        |             |          |               |          |

## (15) Lubrication mechanism configuration and adjustments

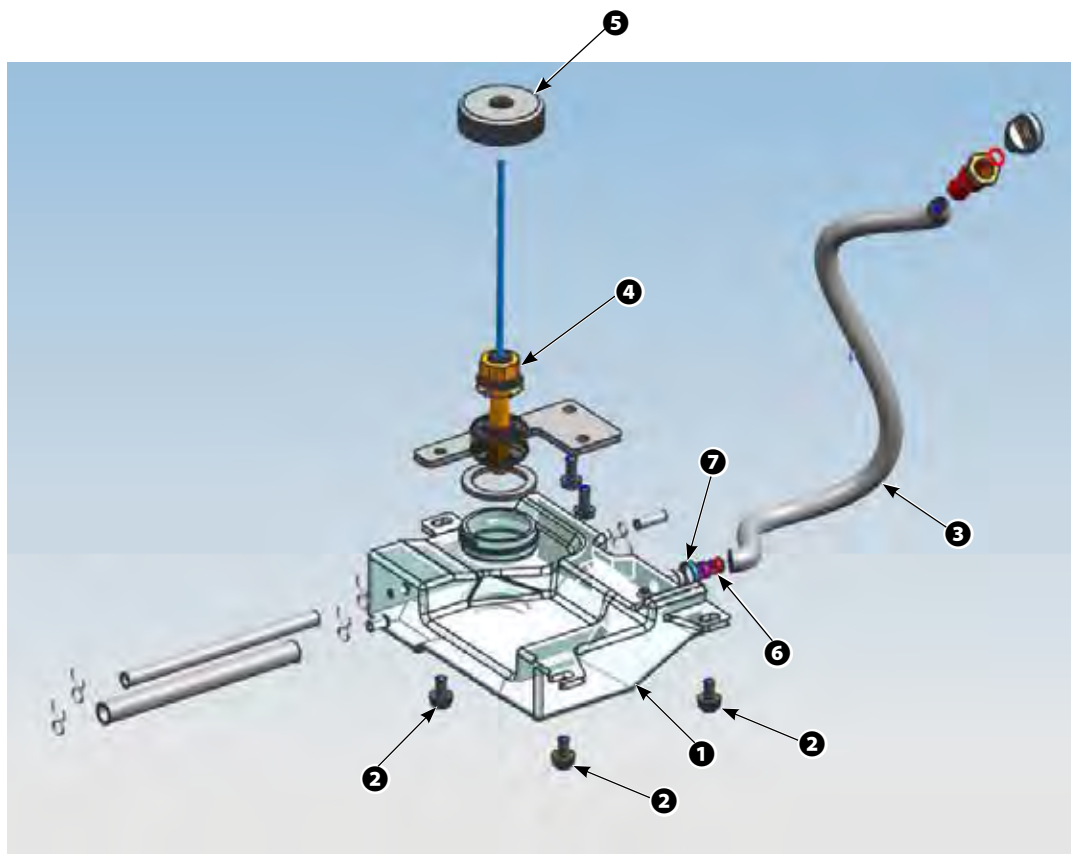


### **WARNING :**

Be sure to turn the power OFF before the following work in order to prevent personal injury due to unintentional starting of the sewing machine.

### **Standard adjustment**

#### **1) Configuration**



| Adjustment Procedure                                                                                                                                                                                                                                                                                              | Results of Improper Adjustment |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| <p><b>1) Configuration</b></p> <ul style="list-style-type: none"> <li>Oil quantity sensor</li> </ul> <p>The oil quantity sensor ❹ that detects the oil amount is installed inside the oil tank.</p> <p>Refer to "3.-(15)-2) Procedure of attaching and detaching" for how to replace the oil quantity sensor.</p> |                                |

## (15) Configuration and adjustment of the lubrication mechanism



### **WARNING :**

Be sure to turn the power OFF before the following work in order to prevent personal injury due to unintentional starting of the sewing machine.

### **Standard adjustment**

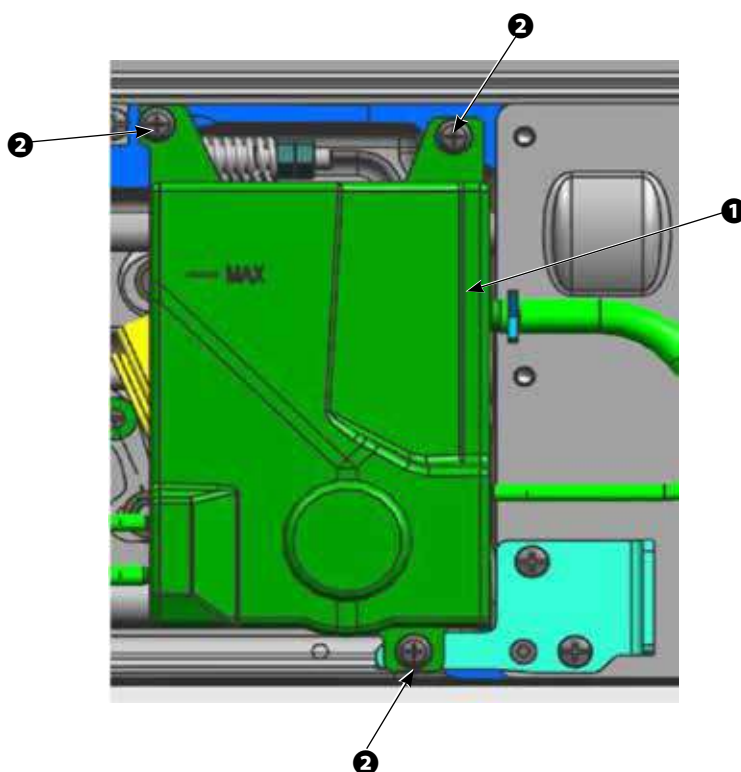
#### **2) Procedure of attaching and detaching**

- ① Remove the connector pin of the oil quantity sensor ④ .



Oil quantity sensor  
Position of connector pin  
No. 4 Red  
No. 9 Black  
No. 10 Yellow

- ② Remove the three setscrews ② from the oil tank ① .



## (15) Configuration and adjustment of the lubrication mechanism

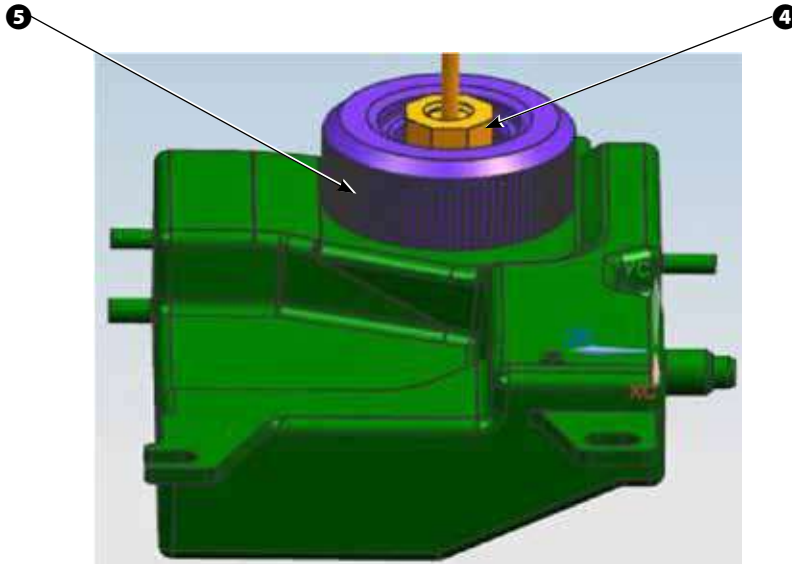


### WARNING :

Be sure to turn the power OFF before the following work in order to prevent personal injury due to unintentional starting of the sewing machine.

### Standard adjustment

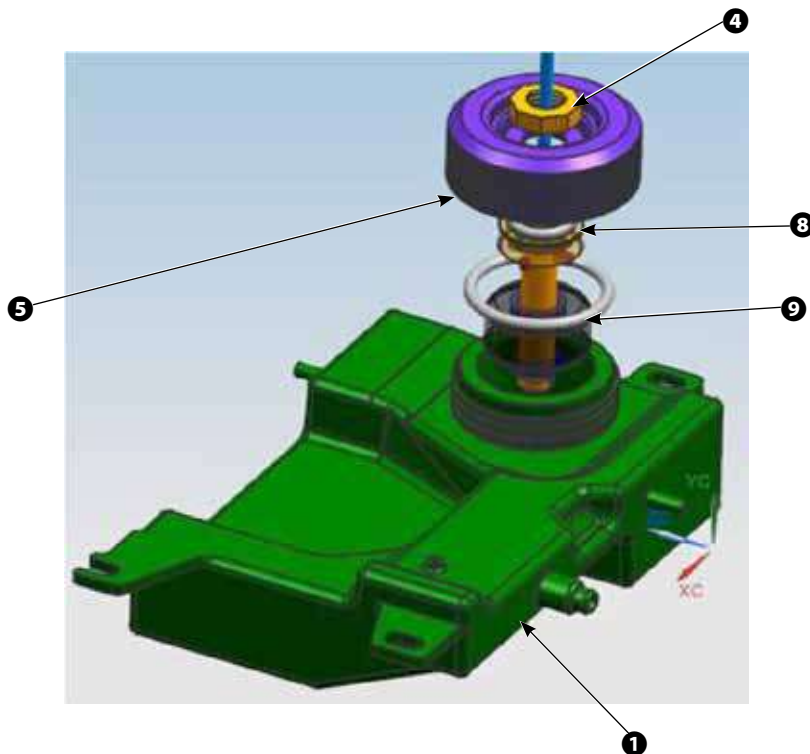
- ③ Remove the nut ④ from the oil quantity sensor and the oil tank lid ⑤ , and then remove the oil quantity sensor.



- ④ Installation can be conducted by the reversed procedure.

Put the O-ring ⑧ put the packing ⑨ between the oil tank ① and oil tank lid ⑤ , and fully tighten the oil quantity sensor nut ④ and oil tank lid ⑤ .

**(Caution) Make sure that there is no tilt clearance.**

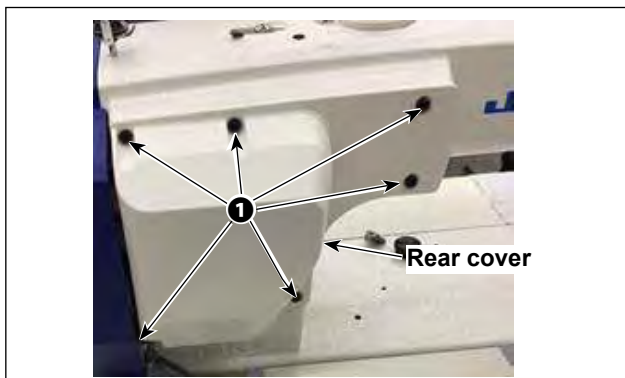


## (16) How to remove a panel

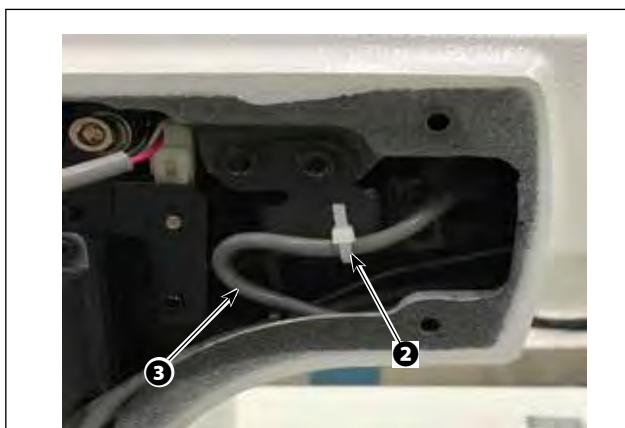


### WARNING :

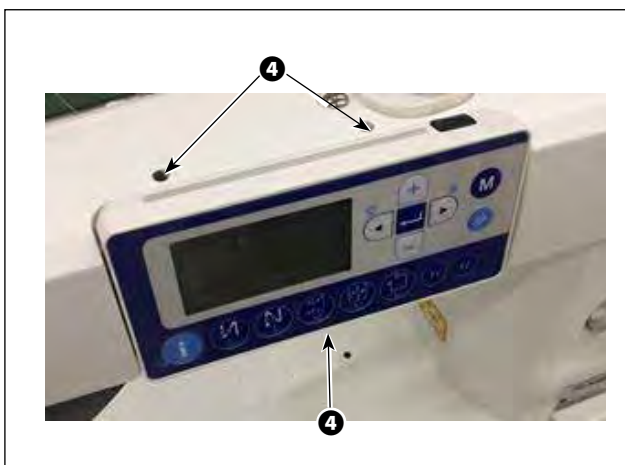
Be sure to turn the power OFF before the following work in order to prevent personal injury due to unintentional starting of the sewing machine.



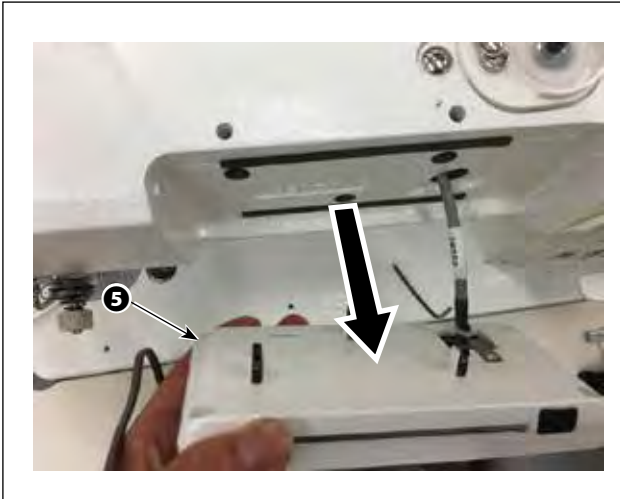
1. Remove the rear cover (six setscrews **1** of the cover).



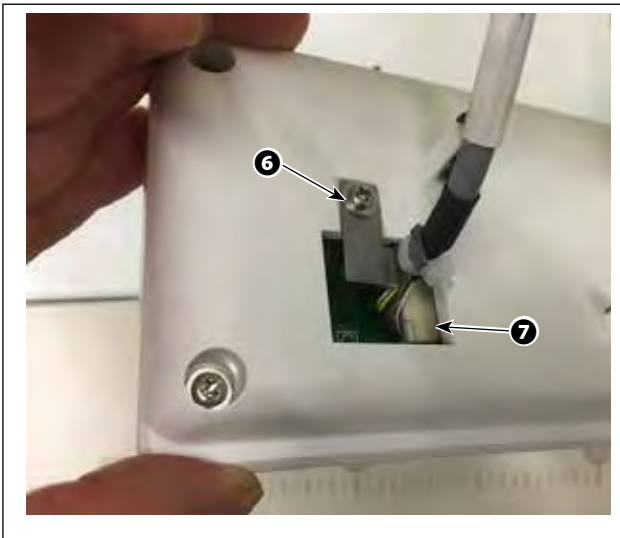
2. Remove a cable clip band **2** and lay the panel cable **3** into the arm.



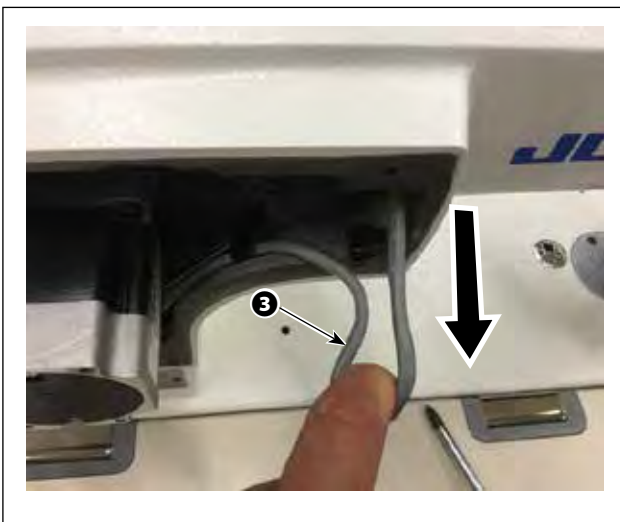
3. Loosen the panel setscrew **4**. (Two setscrews for the upper arm and one setscrew for the lower arm)



4. Pull out the panel ⑤ short.



5. Remove the panel cable clamp screw ⑥, remove the cable connector ⑦, and replace the panel ⑤.

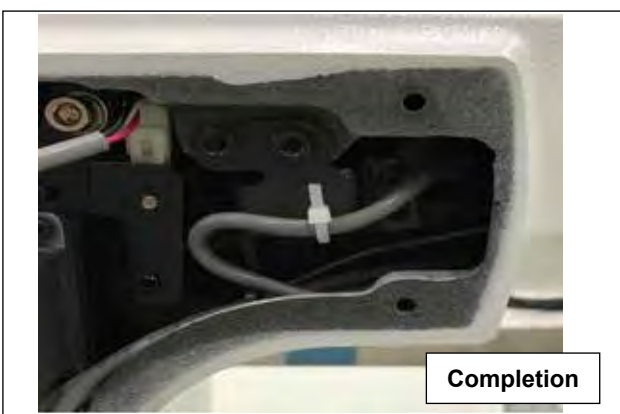


6. After replacement of the panel, reassemble it according to the opposite procedure.

**(Caution) Pull the panel cable ③. If it is loose, it may interfere with the upper shaft and the like.**

Secure the laid cable with a cable clip band.

If a cable clip band is not available right now, refer to "When a cable clip band is not available right now" on the next page for a provisional means.



(When a cable clip band is not available right now)

1. Pull out the panel cable not to it in the arm.



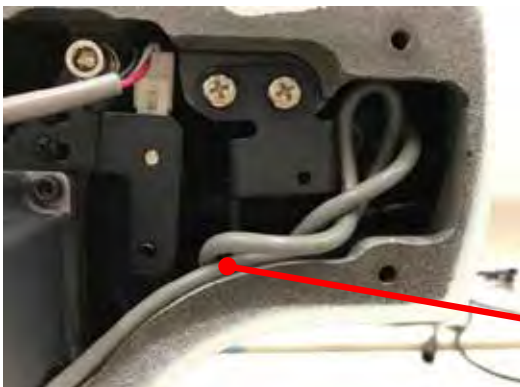
**Do not slack the cable.**

2. Lay the redundant part of the cable under the cable coming out from the panel.



**Lay the cable under this cable.**

3. Put the protruding cable into the hole of the side plate.



**Put the cable into the hole of the side plate.**

Blank lined page for writing.

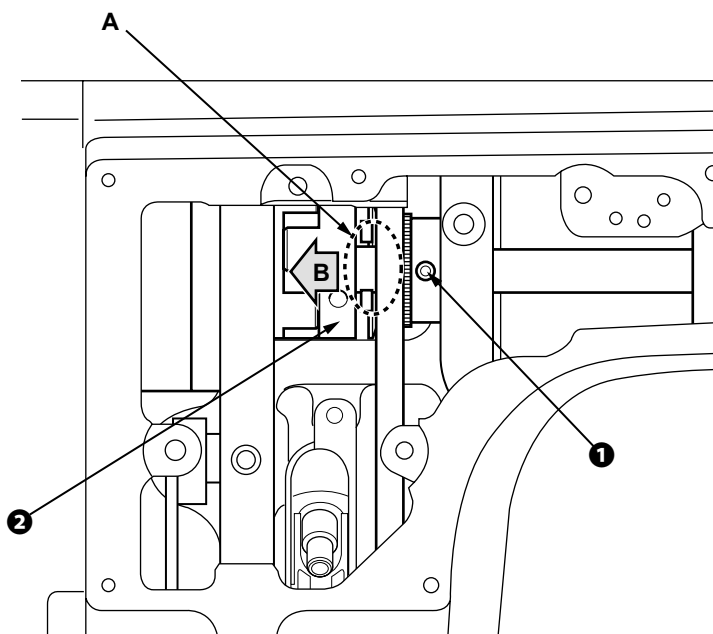
## (17) Adjustment of thrust values of an upper shaft



### **WARNING :**

Be sure to turn the power OFF before the following work in order to prevent personal injury due to unintentional starting of the sewing machine.

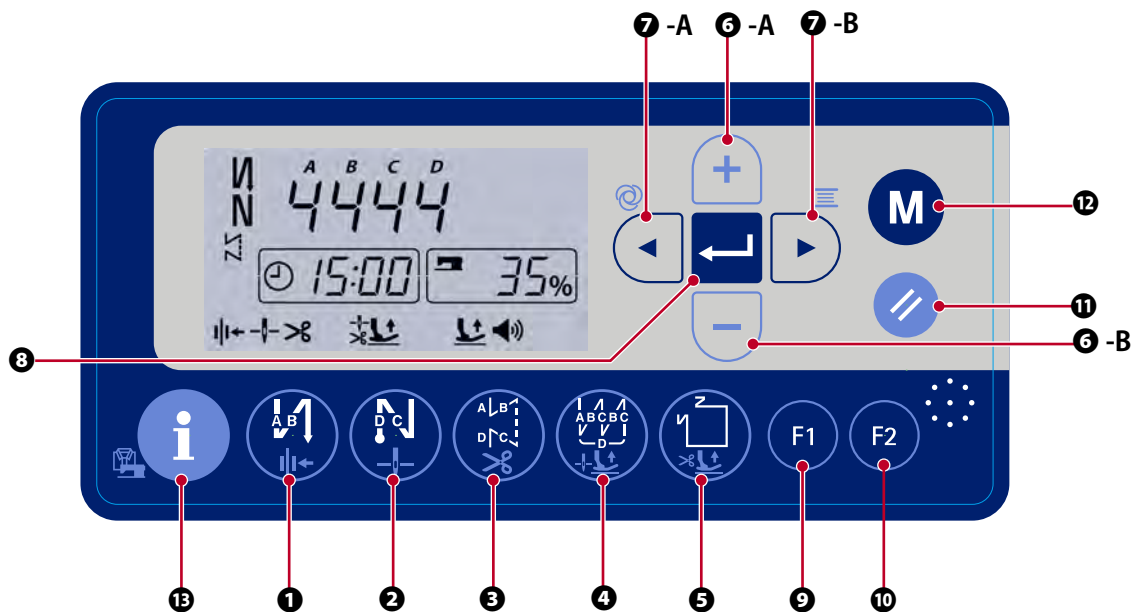
### **Standard adjustment**



| Adjustment Procedure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Results of Improper Adjustment |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| <p>After everything has been installed for the upper shaft, remove rattles from bearings (pressurizing).</p> <ol style="list-style-type: none"> <li>1. Assemble all parts for the upper shaft.</li> <li>2. Loosen two setscrews ❶ of the upper sprocket.</li> <li>3. Enter the tip of a tapered minus screwdriver into the coupling ❷ slot until it stops. (Part A) <ul style="list-style-type: none"> <li>* If the screwdriver tip is not inserted fully in the slot, the flange part of the upper sprocket is deformed or destroyed.</li> </ul> </li> <li>4. Lightly turn the screwdriver to move the coupling ❷ toward B in the direction of the arrow. <ul style="list-style-type: none"> <li>* The torque to turn the screwdriver is 7kgf•cm. (Light turning is sufficient.) If it is turned too strong, the flange part of the upper sprocket is deformed or destroyed.</li> </ul> </li> <li>5. Tighten the setscrew ❶ of the upper sprocket.</li> <li>6. Turn the upper shaft by 90 degrees In regard to the second screw, follow the same procedures as 3. to 5. above.</li> </ol> |                                |

## 4. Operation panel

### (1) Function of panel key



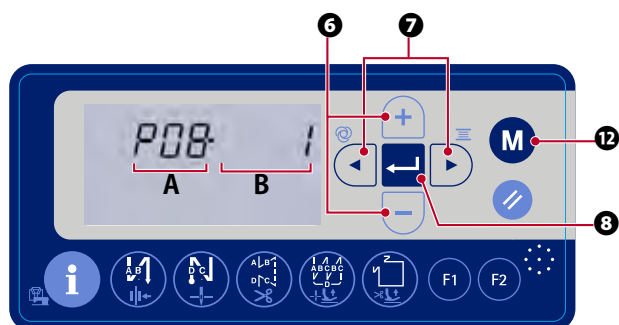
| No. |                                                                                       | How long the key must be pressed | Function                                                                                                                                                   |
|-----|---------------------------------------------------------------------------------------|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ①   |    | Short time                       | Used to changing over the automatic reverse feed stitching at the beginning of sewing to: Reverse feed stitching / Double reverse feed stitching / Disable |
|     |                                                                                       | Long time                        | Used to change over the thread clamp operation between enable / disable                                                                                    |
| ②   |    | Short time                       | Used to change over the automatic reverse feed stitching at the end of sewing to: Reverse feed stitching / Double reverse feed stitching / Disable         |
|     |                                                                                       | Long time                        | Used to change over the needle bar stop position at the time of stopping the sewing machine between up and down                                            |
| ③   |    | Short time                       | Used to set the type of stitching to free stitching                                                                                                        |
|     |                                                                                       | Long time                        | Used to change over the thread trimming operation between enable / disable.                                                                                |
| ④   |    | Short time                       | Used to set the type of stitching to overlapped stitching                                                                                                  |
|     |                                                                                       | Long time                        | Used to change over the lifting of the presser foot during sewing between "automatically lift / not lift".                                                 |
| ⑤   |    | Short time                       | Used to carry out setting of the polygonal-shape stitching.                                                                                                |
|     |                                                                                       | Long time                        | Used to changeover the automatic lifting of presser foot after thread trimming between lift / not lift                                                     |
| ⑥   | A  | Short time                       | Used to increase the maximum sewing speed                                                                                                                  |
|     | B  | Long time                        | Used to decrease the maximum sewing speed                                                                                                                  |

| No. |                                                                                     |                                                                                   | How long the key must be pressed | Function                                                                                                                                                  |
|-----|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7   | A                                                                                   |  | Short time                       | Used to set the number of reverse feed stitches (ABCD) at the beginning and end of sewing                                                                 |
|     |                                                                                     |                                                                                   | Long time                        | Used to change over the one-shot operation between enable / disable                                                                                       |
|     | B                                                                                   |  | Short time                       | Used to set the number of reverse feed stitches (ABCD) at the beginning and end of sewing                                                                 |
|     |                                                                                     |                                                                                   | Long time                        | Used to set the bobbin counter                                                                                                                            |
| 8   |                                                                                     |  | Short time                       | Used to determine the set data                                                                                                                            |
| 9   |    |                                                                                   | Short time                       | Used to display the parameters registered to function key F1<br>* There is no default setting. Before use of this, assign functions to the function keys. |
|     |                                                                                     |                                                                                   | Long time                        | Assign the function to the function key F1.<br>* Refer to "Function keys (F1 and F2) setting" in the Instruction Manual for how to assign functions.      |
| 10  |   |                                                                                   | Short time                       | Used to display the parameters registered to function key F2<br>* There is no default setting. Before use of this, assign functions to the function keys. |
|     |                                                                                     |                                                                                   | Long time                        | Used to register a parameter to function key F2<br>* Refer to "Function keys (F1 and F2) setting" in the Instruction Manual for how to assign functions.  |
| 11  |  |                                                                                   | Short time                       | Used to return the data being edited to the initial state                                                                                                 |
| 12  |  |                                                                                   | Short time                       | Used to set the sewing machine clock right                                                                                                                |
|     |                                                                                     |                                                                                   | Long time                        | Used to set the memory switch                                                                                                                             |
| 13  |  |                                                                                   | Short time                       | Used to change over the display to the thread trimming counter display                                                                                    |

## (2) Function setting

The set value of the function setting can be changed.

### [1] User level



- 1) The function setting screen is displayed by keeping **M** 12 held pressed for three seconds in the normal sewing state.

**A** indicates the function setting number.

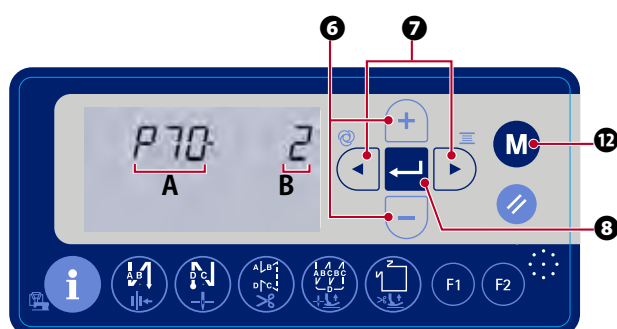
**B** indicates the set value for that function setting number.

- 2) Press 7 to flash function setting No. A on and off. In this state, press 6 to select the function setting number you want to set.  
(The figure shows the function setting No. P86, that is used for setting the number stitches to be sewn using the soft-start function.)
- 3) Press 7 to flash setting No. B on and off. In this state, change the set value by pressing 6.
- 4) Press 8 to determine the set value.
- 5) Press **M** 12 to return the sewing machine to the normal sewing state.  
In the case of changing the set value for other function setting number, repeat the steps of procedure 2), 3) and 4). Then, finally carry out step of procedure 5).

### [2] Service level

- 1) Turn on the power while pressing **M** 12.
- 2) The procedure of the function setting is the same as the case of the user level.  
To display the service level, turn on the power while pressing.

### (3) Head selection (Memory switch No. P70)



1) Activate the memory switch in the user level.  
(Refer to "4.-(2)-[1] User level".)

2) Press   7 to make the pressing function setting No. A blink, and press   6 to select "P70".

3) Press   7 to flash the set value (B) on and off. In this state, select the corresponding type of machine head by pressing   6.

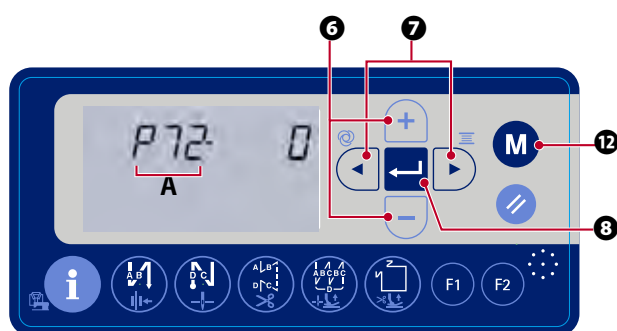
Set value = 2: DDL8000APMS

Set value = 3: DDL8000APSH

4) Data is initialized by pressing  8. Then, the sewing machine returns to the normal sewing state.

**(Cautions)** This item has been factory-adjusted at the time of shipment. Carry out the machine head setting procedure in the case the control box is replaced, or in any case where it is necessary.

### (4) Adjusting the main shaft stop position (Memory switch No. P72)



1) Activate the memory switch in the service level.  
(Refer to "4.-(2)-[2] Service level".)

2) Press   7 to flash function setting No. A on and off. In this state, press   6 to select parameter "P72".

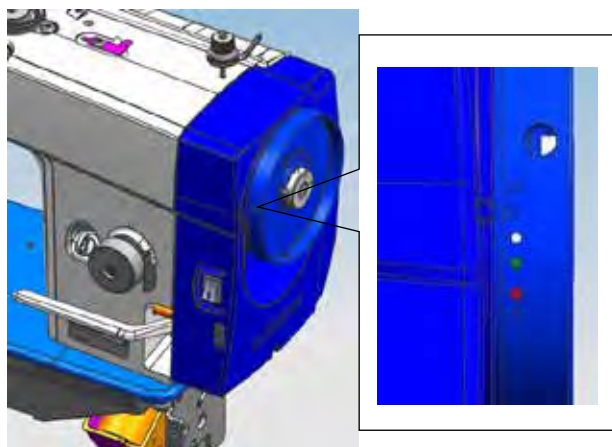
3) Turn handwheel 1 in the normal direction of rotation to align marker line A on the electrical box cover with marker line B on the handwheel.

4) Press  8 to determine the setting.

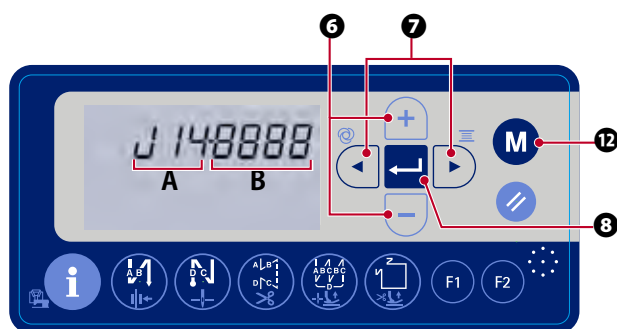
5) Press  12 to return the sewing machine to the sewing state.

**(Important)** If the engraved line (blue) of the hand wheel is largely displaced from the engraved line (blue) of the cover after thread trimming, adjust the angle of the head by the operations below.

**(Caution)** This item was adjusted at the time of shipment.



## (5) Password lock (Memory switch No. 14)



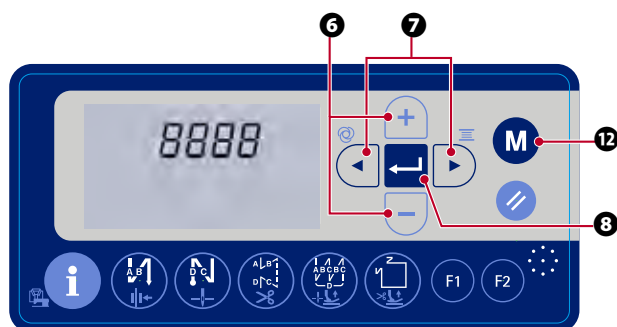
1) Activate the memory switch in the service level.  
(Refer to "4.-(2)-[2] Service level".)

2) Press   **7** to make the pressing setting No. A blink, and press   **6** to select "J14".

3) Press   **7** to flash the setting item B. In this state, set a 4-digit password by pressing   **6**.

**(Cautions)** Write down the password you have set so to remember it.

4) Press  **8** to determine the password and press  **12** to return the normal sewing state.



5) If the password is other than "0000", trying the activation of the memory switch displays the password input screen before the function setting screen is displayed.

6) Enter the four-digit password you have set to the [function setting No. J14] using   **7** and   **6**.

7) The function setting screen is displayed by pressing  **8**. On this screen, the functions can be set.

### [How to clear the password]

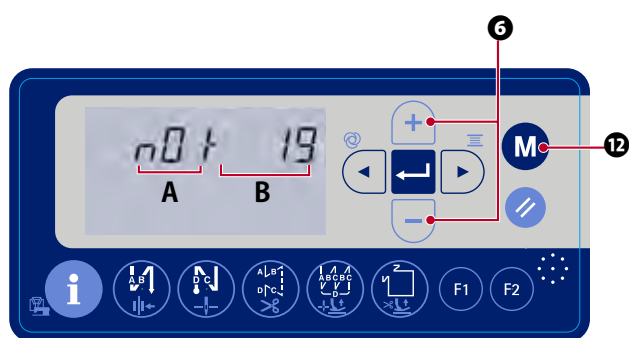
If you forget your password, you can clear the password by turning on the power while simultaneously

pressing ,  and .

## (6) Monitor function

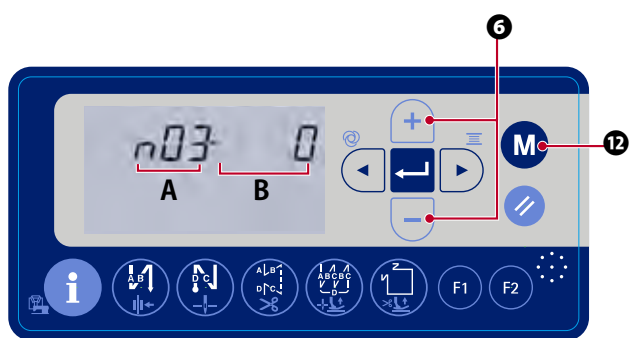
- ① The software version can be viewed with N01, N02, and N14
- ② Each part of the sewing machine during operation can be monitored with N03, N04, N05, N06, and N07.
- ③ Operation restrictions by grease-up error can be canceled with N15.
- ④ N21, N22, N23, N24 can be updated.

|     | Item                            | Level | Display before initial operation                                                           | Display after initial operation                                |
|-----|---------------------------------|-------|--------------------------------------------------------------------------------------------|----------------------------------------------------------------|
| N01 | Main software version           | U     | Displays the main software version.                                                        | →                                                              |
| N02 | Panel software version          | U     | Displays the panel software version.                                                       | →                                                              |
| N03 | Sewing machine speed monitor    | S     | Measures the sewing machine speed and displays it.                                         | →                                                              |
| N04 | Input value of pedal A/D        | S     | Displays the input value of pedal A/D.                                                     | →                                                              |
| N05 | Display of principal axis angle | S     |                                                                                            | Displays the angle when the up stop position is zero degree.   |
| N06 | Display of principal axis angle | S     |                                                                                            | Displays the angle when the down stop position is zero degree. |
| N07 | Supply voltage A/D value        | S     | Displays the A/D value of the supply voltage.                                              | →                                                              |
| N14 | ST software version             | U     | Displays the version of the presser lifter motor control software.                         | →                                                              |
| N15 | Grease-up stitch count          | S     | Displays the number of stitches when greasing is necessary.<br>The counter can be cleared. | →                                                              |



### [1] Check of software version

- 1) Activate the memory switch in the user level.  
(Refer to "4.-(2)-[1] User level".)
- 2) Press ⑥ in the state that the function setting No. A is blinking to select "N01" (N02, N03).
- 3) Press ⑫ return the normal sewing state.

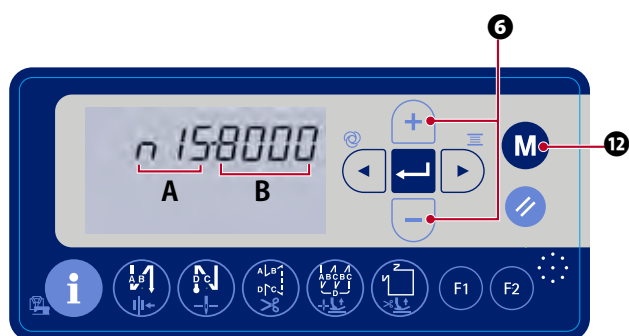


### [2] Operation state monitoring

- 1) Activate the memory switch in the service level.  
(Refer to "4.-(2)-[2] Service level".)
- 2) Press ⑫ to return the normal sewing state.
- 3) Make the needle bar and presser lifter motor conduct initial operation.  
(The method of making them conduct initial operation varies depending on the setting on P136.)

- 4) Hold down ⑫ for 3 seconds to display the memory switch.
- 5) Press ⑥ in the state that the function setting No. A is blinking to select "N03 (N04, N05, N06, N07)".
- 6) Put the sewing machine in operation by pedal operation. Change in the contents on the display can be viewed.
- 7) Press ⑫ to return the normal sewing state.

### [3]-1 How to reset the grease shortage error



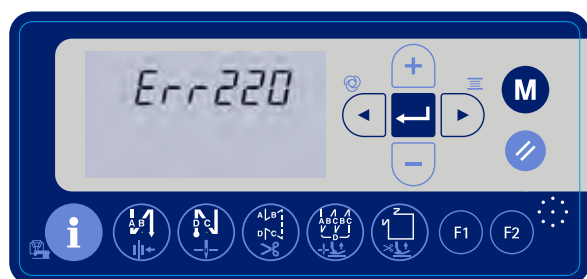
- 1) Activate the memory switch in the service level.  
(Refer to "4.-(2)-[2] Service level".)

- 2) Press   **6** in the state that the function setting No. (A) is blinking to select "N15". The value displayed on the grease-up errorcounter can be viewed.
- 3) Press  **11** to clear the set value (B) to "0" (zero).  
\* The grease shortage error is reset by carrying out this operation.
- 4) Press  **12** to return the sewing machine to the normal sewing state.

### [3]-2 Grease shortage warning

(Grease shortage warning)

When the time of maintenance for adding the grease, "E220 Grease shortage warning" error is displayed for three seconds after turning the power ON. In this state, however, the sewing machine can be used for a certain period time.



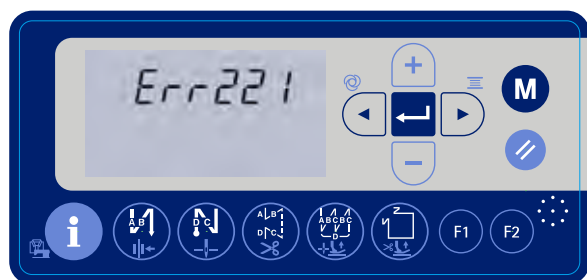
**(Cautions) Once E220 error is displayed, be sure to replenish the sewing machine with grease without exceptions.**

- \* To clear the error, refer to "4.-(3)-[3]-1. How to cancel grease-up error".

(Grease shortage error)

If the error E220 is not reset, "E221 Grease shortage error" will be continuously displayed.

If this state continues, the sewing machine operation will be disabled. To prevent this, be sure to reset the error (to clear n15) after carrying out the maintenance for replenishing the sewing machine with grease.



- \* To clear the error, refer to "4.-(3)-[3]-1. How to cancel grease-up error".

## (7) List of key input functions at power-on

Turning on the power while the panel switch on the front is pressed allows each function to be set.

| Function                                   | key                                                                                                                                                                                                                                                   |
|--------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Memory switch<br>Service level             |                                                                                                                                                                      |
| Password clear                             |    |
| Panel software rewrite<br>(Only 8000AS/AB) |                                                                                                                                                                      |

## 5. Function setting list

### (1) Function setting list

Table 1.

| No.   | Item                                                                                        | Description                                                                                                                                                                                                                                                                                                                                                                                                   | Setting range          | Setting level | Default                |
|-------|---------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|---------------|------------------------|
| P01   | Maximum sewing speed                                                                        | The maximum sewing speed reached by fully depressing the pedal is set with this function setting item. The maximum sewing speed can be changed within the sewing speed range specified for [P68 Maximum sewing speed].<br><b>* The maximum sewing speed can also be changed using the + - switch on the operation panel.</b>                                                                                  | 100 to [P68] (sti/min) | U             | MS : 4000<br>SH : 3500 |
| P02   | Tilt of the pedal                                                                           | Change in the sewing speed with respect to the depressing depth of the pedal is set with this function setting item.<br>The sewing speed is increased abruptly when this parameter is set to a large value, or increased slowly when this parameter is set to a small value.                                                                                                                                  | 10 to 100 (%)          | S             | 80                     |
| P04   | Reverse feed stitching speed at the beginning of sewing                                     | The sewing speed to be used during the reverse feed stitching at the beginning of sewing is set with this function setting item.                                                                                                                                                                                                                                                                              | 100 to 3000 (sti/min)  | U             | 1900                   |
| P05   | Reverse feed stitching speed at the end of sewing                                           | The sewing speed to be used during the reverse feed stitching at the end of sewing is set with this function setting item.                                                                                                                                                                                                                                                                                    | 100 to 3000 (sti/min)  | U             | 1900                   |
| P06   | Overlapped stitching speed                                                                  | The sewing speed to be used during the overlapped stitching is set with this function setting item.<br><b>* This speed can also be changed using the relevant switch on the operation panel.</b>                                                                                                                                                                                                              | 100 to 3000 (sti/min)  | U             | 1900                   |
| * P07 | Sewing speed for soft start                                                                 | The sewing speed for soft start at the beginning of sewing is set with this function setting item.                                                                                                                                                                                                                                                                                                            | 100 to 1500 (sti/min)  | U             | 800                    |
| * P08 | Soft start function                                                                         | The number of stitches to be sewn with the soft-start function at the beginning of sewing is set with this function setting item.<br>0 : The soft-start function is not selected<br>1 to 9 : The number of stitches to be sewn with the soft-start function                                                                                                                                                   | 0 to 99 (Stitches)     | U             | 1                      |
| P09   | Sewing speed for the polygonal-shape stitching                                              | Sewing speed for the polygonal-shape stitching is set with this function setting item.<br><b>* The sewing speed can also be changed using the + - switch on the operation panel.</b>                                                                                                                                                                                                                          | 200 to [P68] (sti/min) | U             | MS : 4000<br>SH : 3500 |
| P10   | Setting of the reverse feed stitching at the end of end of polygonal-shape stitching        | Whether the reverse feed stitching is automatically carried out at the end of polygonal-shape stitching is set with this function setting item<br>ON : Reverse feed stitching is automatically performed at the end of sewing<br>OFF : Sewing machine stops sewing before starting reverse feed stitching at the end of sewing. It performs reverse feed stitching when the front part of pedal is depressed. | ON/OFF                 | U             | ON                     |
| P12   | Changeover of the reverse feed stitching at the start of sewing between Auto / Manual       | The sewing speed for the reverse feed stitching at the beginning of sewing is set with this function setting item.<br>0 : The reverse feed stitching is performed by manually operating the pedal.<br>1 : The reverse feed stitching is performed at the sewing speed set with [P04 Reverse feed stitching speed at the beginning of sewing].                                                                 | 0 to 1 (-)             | U             | 1                      |
| * P13 | Function of stop immediately after the reverse feed stitching at the beginning of sewing    | Operation to be carried out at the end of the reverse feed stitching at the beginning of sewing is selected with this function setting item.<br>CON : The sewing machine does not stop temporarily after completion of the reverse feed stitching at the beginning of sewing<br>STP : The sewing machine stops temporarily after completion of the reverse feed stitching at the beginning of sewing          | CON/STP                | U             | CON                    |
| * P15 | Changeover of the needle up/down correction function                                        | The function of needle up/down correction switch is changed over with this function setting item.<br>0 : Needle up/down correction<br>1 : One stitch correction<br>2 : Continuous half stitch<br>3 : Continuous one stitch                                                                                                                                                                                    | 0 to 3 (-)             | U             | 0                      |
| P16   | Limited speed during the reverse feed stitching on the way                                  | Limited speed in the case of carrying out the reverse feed stitching operation is set with this function setting item.<br>0 : No speed limit<br>10 to 3000 : Sewing is performed at the set sewing speed                                                                                                                                                                                                      | 100 to 4000 (sti/min)  | S             | 2000                   |
| * P18 | Correction of solenoid-on timing for the reverse feed stitching at the beginning of sewing  | Stitch alignment can be carried out by changing the timing of actuating the reverse-feed stitching solenoid at the time of reverse feed stitching at the beginning of sewing. When the set value for this parameter is increased, the length of stitch at the end of A process is increased and the length of stitch at the beginning of B process is decreased.                                              | 0 to 200 (°)           | U             | 123                    |
| * P19 | Correction of solenoid-off timing for the reverse feed stitching at the beginning of sewing | Stitch alignment can be carried out by changing the timing of releasing the reverse-feed stitching solenoid at the time of reverse feed stitching at the beginning of sewing. When the set value for this parameter is increased, the length of stitch at the beginning of B process is increased.                                                                                                            | 0 to 200 (degree)      | U             | 130                    |
| P21   | Position to depress the front part of pedal (sewing start position)                         | Start position of sewing by operating the pedal is set with this function setting item.                                                                                                                                                                                                                                                                                                                       | 30 to 1000 (-)         | S             | 520                    |
| P22   | Pedal freeing position                                                                      | Releasing position of pedal operation is set with this function setting item.                                                                                                                                                                                                                                                                                                                                 | 30 to 1000 (-)         | S             | 420                    |

\* Supplementary explanation is added in 4.-(2) Further information about memory switch.

© These data are stored in the main board in the control box. Data other than these data are stored in the panel board in the panel.

| No.   | Item                                                                                           | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Setting range           | Setting level | Default                |
|-------|------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|---------------|------------------------|
| P23   | Position to lift the presser foot by pedal                                                     | The position to lift the presser foot by operating the pedal is set with this function setting item.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 30 to 1000<br>(-)       | S             | 270                    |
| P24   | Position to perform thread trimming by pedal                                                   | The position to perform thread trimming by operating the pedal is set with this function setting item.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 30 to 500<br>(-)        | S             | 130                    |
| * P25 | Correction of solenoid-on timing for the reverse feed stitching at the end of sewing           | Stitch alignment can be carried out by changing the timing of actuating the reverse-feed stitching solenoid at the time of reverse feed stitching at the end of sewing. When the set value for this parameter is increased, the length of stitch at the beginning of C process is increased.                                                                                                                                                                                                                                                                                                                                                       | 0 to 200<br>(°)         | U             | 123                    |
| * P26 | Correction of solenoid-off timing for the reverse feed stitching at the end of sewing          | Stitch alignment can be carried out by changing the timing of releasing the reverse-feed stitching solenoid at the time of reverse feed stitching at the end of sewing. When the set value for this parameter is increased, the length of stitch at the end of C process is decreased and the length of stitch at the beginning of D process is increased.                                                                                                                                                                                                                                                                                         | 0 to 200<br>(°)         | U             | 130                    |
| P29   | Brake force of the main shaft at the time of stopping the sewing machine after thread trimming | Main shaft brake force is adjusted with this function setting item for preventing the sewing machine from overrunning before stopping.<br>If it is too large, it takes to much time to stop, and if it is too small, overrunning may occur.                                                                                                                                                                                                                                                                                                                                                                                                        | 1 to 45<br>(-)          | S             | 30                     |
| * P32 | Correction of solenoid-on timing for the overlapped stitching                                  | Stitch alignment can be carried out by changing the timing of actuating the reverse feed stitching solenoid at the time of overlapped stitching. When the set value for this parameter is increased, the length of stitch at the end of A (C) process is increased and the length of stitch at the beginning of B process is decreased.                                                                                                                                                                                                                                                                                                            | 0 to 200<br>(°)         | U             | MS : 105<br>SH : 92    |
| * P33 | Correction of solenoid-off timing for the overlapped stitching                                 | Stitch alignment can be carried out by changing the timing of releasing the reverse-feed stitching solenoid at the time of overlapped stitching. When the set value for this parameter is increased, the length of stitch at the end of B process is increased and the length of stitch at the beginning of C process is decreased.                                                                                                                                                                                                                                                                                                                | 0 to 200<br>(°)         | U             | MS : 105<br>SH : 100   |
| * P37 | First current value (ON duty) of thread clamp                                                  | The first current value (ON duty) for the thread clamp is set with this function setting item.<br>Current value from activation of the thread presser at (P78) to (P166) passage                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 0 to 100<br>(%)         | U             | MS : 40<br>SH : 50     |
| P44   | Brake force of the main shaft at the time of stopping the sewing machine on the way            | Main shaft brake force is adjusted with this function setting item for preventing the sewing machine from overrunning before stopping on the way.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1 to 45                 | S             | 16                     |
| * P45 | Setting of BT holding Duty                                                                     | Sets the current value of the solenoid at BT on.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1 to 50<br>(%)          | S             | 30                     |
| * P46 | Setting of the function of reverse revolution to lift the needle                               | This function rotates the main shaft in the reverse direction of sewing to bring the needle bar to the highest position.<br>ON : Reverse-revolution operation is in the ON state<br>OFF : Reverse-revolution operation is in the OFF state                                                                                                                                                                                                                                                                                                                                                                                                         | ON/OFF                  | U             | OFF                    |
| P47   | Reverse revolution angle to lift the needle                                                    | The operating angle of the reverse-revolution to lift the needle is adjusted with this function setting item.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 50 to 200<br>(1/4°)     | S             | 160                    |
| P48   | Sewing speed at a low speed                                                                    | The minimum sewing speed of the sewing machine by operating the pedal is set with this function setting item.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 100 to 500<br>(sti/min) | U             | 200                    |
| P49   | Sewing speed for thread trimming                                                               | Sewing speed to be used when performing thread trimming is set with this function setting item.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 100 to 500<br>(sti/min) | U             | 210                    |
| P50   | 2nd thread trimming speed                                                                      | 0: Operation is conducted at the first thread trimming speed.<br>10 to 500: The speed in the latter half is set when the thread trimming speed is decreased in the latter half.                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 0 to 500<br>(sti/min)   | S             | 180                    |
| P51   | Timing to change over to the 2nd thread trimming speed                                         | The timing to change over the sewing speed to the 2nd thread trimming speed is set with this function setting item.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 270 to 370<br>(°)       | S             | 320                    |
| P52   | Time to wait for sewing after lowering the presser foot                                        | The time to wait for starting sewing after the presser foot is lowered is set.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 10 to 500<br>(ms)       | S             | 120                    |
| P53   | Setting of operation of the presser foot when the back part of pedal is depressed              | The operation of the presser foot when the back part of pedal is depressed is set with this function setting item.<br>0 : Presser foot does not operate even when the back part of pedal is depressed.<br>1 : Presser foot goes up to the 1st presser-foot lifting position when the back part of pedal is depressed by half of the depth. It goes up to the 2nd presser-foot lifting position when the back part of the pedal is further depressed.<br>2 : Presser foot does not operate even when the back part of pedal is depressed. It goes up to the 2nd presser-foot lifting position when the back part of the pedal is further depressed. | 0 to 2<br>(-)           | U             | 1                      |
| P66   | Setting of the machine head tilt switch                                                        | The machine head tilt detection method of the machine head tilt switch is set with this function setting item.<br>0 : Not detected<br>1 : Error is detected in the case the signal is LOW<br>2 : Error is detected in the case the signal is HIGH                                                                                                                                                                                                                                                                                                                                                                                                  | 0 to 2<br>(-)           | S             | 1                      |
| * P68 | Maximum sewing speed                                                                           | The maximum sewing speed is set with this function setting item. (The MAX value differs with the type of machine head. MS: 5000; SH: 4500)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 100 to MAX<br>(sti/min) | S             | MS : 4000<br>SH : 3500 |

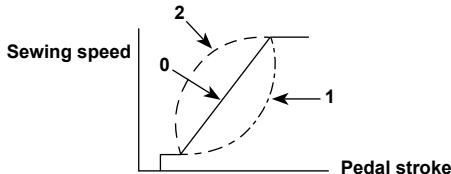
\* Supplementary explanation is added in 4.-(2) Further information about memory switch.

© These data are stored in the main board in the control box. Data other than these data are stored in the panel board in the panel.

| No. | Item                                                                                      | Description                                                                                                                                                                                                                                                                                                                                  | Setting range              | Setting level | Default           |
|-----|-------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|---------------|-------------------|
|     | P70 Machine head selection (Initialization of data)                                       | Machine head type is selected with this function setting item.<br>2 : DDL-8000APMS<br>3 : DDL-8000APSH<br>★ Select an applicable head and press the enter switch, and all the P and J data except "P72", "P73", "P123" and "J14" are initialized. The data of N are out of the initialization target.                                        | 2 to 3<br>(-)              | S             | 2                 |
| ◎   | P72 Adjustment mode for the needle-up stop angle                                          | The principal axis angle at that moment is always shown on the display. Rotate the pulley to adjust the needle top position and press the enter switch, and the needle top angle and needle bottom angle are automatically adjusted.<br>★ This data is not initialized with P70.                                                             | 0 to 1439<br>(1/4°)        | S             | 0                 |
| ◎   | P73 Adjustment mode for the needle-down stop angle                                        | The principal axis angle at that moment is always shown on the display. Rotate the pulley to adjust the needle bottom position and press the enter switch, and only the needle bottom angle is automatically adjusted.<br>★ This data is not initialized with P70.                                                                           | 0 to 1439<br>(1/4°)        | S             | 0                 |
| *   | P74 Buffer brake waiting time at BT off                                                   | Time from shutoff of the REVERSE signal for impact absorbing to solenoid restart (to brake application)                                                                                                                                                                                                                                      | 0 to 990<br>(ms)           | S             | 13                |
| *   | P75 Buffer brake time at BT off                                                           | Time of restarting the solenoid for impact absorbing (of brake application)                                                                                                                                                                                                                                                                  | 0 to 990<br>(ms)           | S             | 10                |
| *   | P76 BT suction time                                                                       | Time when the BT solenoid is activated                                                                                                                                                                                                                                                                                                       | 10 to 990<br>(ms)          | S             | 200               |
| *   | P77 Back-tack solenoid ON timing at the end of sewing                                     | The BT solenoid ON timing at the end of sewing is set with this function setting item.<br>★ This parameter applies only to the free stitching.                                                                                                                                                                                               | 50 to 330<br>(°)           | U             | 150               |
|     | P78 Thread clamp ON angle                                                                 | ON-angle of the thread clamp is set with this function setting item.                                                                                                                                                                                                                                                                         | 0 to 359<br>(°)            | U             | 190               |
|     | P79 Thread clamp OFF angle                                                                | OFF-angle of the thread clamp is set with this function setting item.                                                                                                                                                                                                                                                                        | 0 to 359<br>(°)            | U             | 300               |
|     | P87 Wiper operating time                                                                  | The time during which the wiper is turned ON is set with this function setting item.                                                                                                                                                                                                                                                         | 10 to 990<br>(ms)          | S             | 50                |
|     | P93 Reaction time when the back part of pedal is depressed                                | The reaction time required to start lifting of the presser foot after the back part of the pedal is depressed is set with this function setting item.                                                                                                                                                                                        | 10 to 990<br>(ms)          | S             | 100               |
|     | P109 Wiper operation timing                                                               | The waiting time required until the wiper starts operation after the sewing machine stops with its needle up.                                                                                                                                                                                                                                | 5 to 990<br>(ms)           | S             | 5                 |
|     | P110 Waiting time until the sewing machine starts next sewing                             | The waiting time required until the sewing machine starts next sewing after the thread trimming solenoid is turned OFF.                                                                                                                                                                                                                      | 0 to 500<br>(ms)           | S             | 250               |
|     | P112 Needle-up stop angle                                                                 | The angle from the upper dead point of needle to the needle-up stop position is set with this function setting item.                                                                                                                                                                                                                         | -359 to 359<br>(°)         | S             | 55                |
|     | P113 Bobbin counter                                                                       | The largest value that the bobbin counter can count is set with this function setting item. When the counter reaches that value, it stops counting.                                                                                                                                                                                          | 0 to 9999<br>(10 stitches) | U             | 500               |
|     | P114 Reverse feed solenoid operation stopping angle (start)                               | The angle at which the solenoid output is prohibited (start) after pressing the reverse-feed stitching on the way switch.                                                                                                                                                                                                                    | 0 to 359<br>(°)            | S             | 262               |
|     | P115 Reverse feed solenoid operation stopping angle (end)                                 | The angle at which the solenoid output is prohibited (end) after pressing the reverse-feed stitching on the way switch.                                                                                                                                                                                                                      | 0 to 359<br>(°)            | S             | 112               |
|     | P116 Function of prohibiting the correction operation after turning the handwheel by hand | The correction stitching function when turning the pulley by hand upon completion of the polygonal-shape stitching is set with this function setting item.<br>0 : Correction sewing function is enabled<br>1 : Correction sewing function is disabled                                                                                        | 0 to 1<br>(-)              | U             | 0                 |
|     | P117 Thread trimming operation after turning the handwheel by hand                        | The thread trimming operation after turning the pulley by hand to move the sewing machine from the upper and lower positions is set with this function setting item.<br>0 : Thread trimming operation is carried out after turning the pulley by hand.<br>1 : Thread trimming operation is not carried out after turning the pulley by hand. | 0 to 1<br>(-)              | U             | 1                 |
| *   | P118 Setting of the needle up/down switch operation after thread trimming                 | The operation of the needle up/down switch after thread trimming is set with this function setting item.<br>0 : Needle up/down operation is carried out<br>1 : One-stitch operation is carried out                                                                                                                                           | 0 to 1<br>(-)              | U             | 0                 |
|     | P126 Electric current while the presser motor is at rest                                  | The electric current while the presser motor is in the stopping state is set with this function setting item.<br>(For setting value 2, the value becomes 2 x 0.5 A = 1.0 A.)                                                                                                                                                                 | 1 to 12<br>(1/2A)          | S             | 2                 |
|     | P127 Electric current while the presser motor is in operation                             | The electric current while the presser motor is in the operating state is set with this function setting item.<br>(For setting value 2, the value becomes 2 x 0.5 A = 1.0 A.)                                                                                                                                                                | 1 to 12<br>(1/2A)          | S             | MS : 8<br>SH : 12 |
|     | P128 Number of condensation stitches at the beginning of sewing                           | The number of condensation stitches at the beginning of sewing is set with this function setting item.                                                                                                                                                                                                                                       | 0 to 5<br>(stitches)       | U             | 0                 |

\* Supplementary explanation is added in 4.-(2) Further information about memory switch.

◎ These data are stored in the main board in the control box. Data other than these data are stored in the panel board in the panel.

| No.    | Item                                                                                                          | Description                                                                                                                                                                                                                                                                                                                                                                                                                  | Setting range         | Setting level | Default |
|--------|---------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|---------------|---------|
| P129   | Number of condensation stitches at the end of sewing                                                          | The number of condensation stitches at the end of sewing is set with this function setting item.                                                                                                                                                                                                                                                                                                                             | 0 to 5 (stitches)     | U             | 0       |
| P130   | Condensation stitching speed at the end of sewing                                                             | The sewing speed for condensation stitching at the end of sewing is set with this function setting item.                                                                                                                                                                                                                                                                                                                     | 100 to 1900 (sti/min) | U             | 310     |
| P131   | Condensation stitching speed at the beginning of sewing                                                       | The sewing speed for condensation stitching at the beginning of sewing is set with this function setting item.                                                                                                                                                                                                                                                                                                               | 0 to 1900 (sti/min)   | U             | 310     |
| P132   | Condensation solenoid operation starting duty                                                                 | ON duty of the condensation solenoid when it starts operation is set with this function setting item.                                                                                                                                                                                                                                                                                                                        | 1 to 80 (%)           | S             | 55      |
| P133   | Condensation solenoid duty while it is in operation                                                           | The duty of the condensation solenoid while it is in operation is set with this function setting item.                                                                                                                                                                                                                                                                                                                       | 1 to 80 (%)           | S             | 10      |
| P134   | Initial operation time of condensation solenoid                                                               | Sets the initial operation duration of condensation solenoid.                                                                                                                                                                                                                                                                                                                                                                | 10 to 150 (ms)        | S             | 115     |
| P135   | Condensation solenoid operation starting angle                                                                | The operation starting angle for the condensation solenoid is set with this function setting item.                                                                                                                                                                                                                                                                                                                           | 10 to 359 (°)         | S             | 75      |
| * P136 | Selection of the presser foot operation when the power is turned ON                                           | Operation of the presser foot when the power is turned ON is selected with this function setting item. (Determines the specifications of the initial operation).<br>0 : The presser foot does not operate (It operates when the back part of the pedal is depressed.)<br>1 : The presser foot goes up after automatically retrieving the origin<br>2 : The presser foot comes down after automatically retrieving the origin | 0 to 2 (–)            | U             | 0       |
| * P138 | Function of pedal curve selection                                                                             | Pedal curve is selected. (Improving pedal inching operation)<br>                                                                                                                                                                                                                                                                           | 0 to 2 (–)            | U             | 0       |
| * P139 | Function of reverse feed stitching on the way                                                                 | The function activated when the reverse feed stitching on the way switch is pressed is selected with this function setting item.<br>0 : Normal back-tack function (Middle-of-reverse-sewing deactivated)<br>1 : Function of reverse feed stitching on the way is enabled (Middle-of-reverse-sewing activated)<br><b>★ If this function is activated, the function of P142 cannot be used.</b>                                | 0 to 1 (–)            | U             | 0       |
| * P140 | Number of stitches of reverse feed stitching on the way                                                       | The number of stitches of reverse feed stitching on the way is set with this function setting item.                                                                                                                                                                                                                                                                                                                          | 1 to 19 (stitches)    | U             | 4       |
| * P141 | Condition to be satisfied to enable the reverse feed stitching on the way while the sewing machine is at rest | The condition to be satisfied to enable the reverse feed stitching switch while the sewing machine is at rest is set with this function setting item.<br>0 : Disabled while the sewing machine is at rest<br>1 : Enabled while the sewing machine is at rest                                                                                                                                                                 | 0 to 1 (–)            | U             | 0       |
| * P142 | Thread trimming function after performing reverse feed stitching on the way                                   | Automatic thread trimming operation after performing the reverse feed stitching on the way is set with this function setting item.<br>0 : Automatic thread trimming is not performed after the completion of reverse feed stitching on the way<br>1 : Automatic thread trimming is performed after the completion of reverse feed stitching on the way<br><b>★ If P142 is activated, this function cannot be used.</b>       | 0 to 1 (–)            | U             | 0       |
| * P143 | Sewing speed for reverse feed stitching on the way                                                            | Sewing speed during the reverse feed stitching on the way is set with this function setting item.                                                                                                                                                                                                                                                                                                                            | 200 to 3000 (sti/min) | U             | 1900    |
| P145   | ON/OFF of the data output to JANET                                                                            | Output of data to JANET is set with this function setting item.<br>0 : Data is not output to JANET<br>1 : Data is output to JANET                                                                                                                                                                                                                                                                                            | 0 to 1 (–)            | S             | 0       |
| P146   | Waiting time to start operation of thread pulling cylinder                                                    | Waiting time until the start of operation of the (bird's nest) thread pulling cylinder is set with this function setting item.                                                                                                                                                                                                                                                                                               | 0 to 990 (ms)         | U             | 150     |
| P147   | Thread pulling cylinder ON time                                                                               | The time to turn ON the (bird's nest) thread pulling cylinder is set with this function setting item.                                                                                                                                                                                                                                                                                                                        | 0 to 990 (ms)         | U             | 120     |
| P148   | Time until sewing starts after turning OFF the thread pulling cylinder                                        | The waiting time required until the sewing machine starts next sewing after turning OFF the (bird's nest) thread pulling cylinder is set with this function setting item.                                                                                                                                                                                                                                                    | 0 to 990 (ms)         | S             | 30      |
| * P149 | Buffer brake Duty time at BT on                                                                               | Current value of BT solenoid brake (before stroke end)                                                                                                                                                                                                                                                                                                                                                                       | 50 to 100 (%)         | S             | 50      |

\* Supplementary explanation is added in 4.-(2) Further information about memory switch.

◎ These data are stored in the main board in the control box. Data other than these data are stored in the panel board in the panel.

| No.    | Item                                                                       | Description                                                                                                                                                                                                               | Setting range  | Setting level | Default |
|--------|----------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|---------------|---------|
| * P150 | REVERSE signal off time                                                    | Time from the BT SW being turned off to reverse signal being stopped                                                                                                                                                      | 2 to 500 (ms)  | S             | 2       |
| P151   | ON/OFF of the bird's nest preventing operation                             | (Bird's nest)<br>ON/OFF of the bird's nest preventing operation is set with this function setting item.                                                                                                                   | 0 to 1 (–)     | U             | 0       |
| P152   | Waiting time until the wiper cylinder starts operation                     | (Bird's nest)<br>Sets the time to wait for starting wiper cylinder operation.                                                                                                                                             | 0 to 990 (ms)  | S             | 110     |
| P153   | Wiper cylinder ON time                                                     | ((Bird's nest)<br>Sets the time duration of the wiper cylinder being ON.                                                                                                                                                  | 0 to 990 (ms)  | U             | 150     |
| P154   | Time until sewing starts after turning OFF the wiper cylinder              | (Bird's nest)<br>The waiting time required until the sewing machine starts the next sewing after turning OFF the wiper cylinder is set with this function setting item.                                                   | 0 to 990 (ms)  | S             | 30      |
| P155   | Wiper output duty                                                          | (Bird's nest)<br>ON duty of the wiper output is set with this function setting item.                                                                                                                                      | 0 to 100 (%)   | S             | 90      |
| P159   | Suction ON/OFF                                                             | (Bird's nest) ON/OFF of the suction device is set with this function setting item.                                                                                                                                        | 0 to 1 (–)     | S             | 1       |
| P160   | Suction time                                                               | (Bird's nest)<br>Sets the time duration of suction.                                                                                                                                                                       | 5 to 5000 (ms) | S             | 500     |
| * P161 | Presser lifting operation at holding thread ON/OFF                         | ON / OFF of the presser lifting operation when clamping the thread is set with the function setting item.<br>0 : Activates the lifting operation.<br>1 : Deactivates the lifting operation.                               | 0 to 1 (–)     | U             | 0       |
| * P162 | Angle at start of presser lifting operation starts when the thread is held | Setting of presser lifting amount at holding thread                                                                                                                                                                       | 0 to 359 (°)   | U             | 100     |
| * P163 | Ending angle of soft start for the thread clamp                            | The ending angle of the soft start for the thread clamp is set with this function setting item.                                                                                                                           | 0 to 720 (°)   | U             | 340     |
| * P164 | Setting of presser lifting amount at holding thread                        | The amount of lift of the presser foot when clamping the thread is set with this function setting item.                                                                                                                   | 0 to 500 (–)   | U             | 50      |
| * P165 | Presser lifting operation time when the thread is held                     | Sets the presser lifting operation time when the thread is held.                                                                                                                                                          | 1 to 990 (ms)  | U             | 20      |
| * P166 | 1st electric current time for thread clamp                                 | Period of time during which the 1st electric current is fed applied to the thread clamp is set with this function setting item.<br>Time from the thread presser being activated to the second current value being changed | 1 to 990 (ms)  | U             | 7       |
| * P167 | 2nd electric current value for thread clamp (ON duty)                      | “ON duty” is set in order to determine the 2nd electric current value of the thread clamp<br>Current value to which the value changed after the thread presser is activated and (P166) passes                             | 1 to 100 (%)   | U             | 69      |
| * P168 | BT initial on time                                                         | Time from BT solenoid being activated to brake applied (before stroke end)                                                                                                                                                | 1 to 200 (ms)  | S             | 15      |
| * P169 | Buffer brake time at BT on                                                 | Time duration of BT solenoid brake being applied (before stroke end)                                                                                                                                                      | 1 to 200 (ms)  | S             | 40      |
| * P170 | Buffer brake Duty setting at BT off                                        | Current value when the solenoid for impact absorbing is restarted (brake).                                                                                                                                                | 1 to 200 (%)   | S             | 100     |

\* Supplementary explanation is added in 4.-(2) Further information about memory switch.

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Table 2 Panel function setting items

| No. | Item                     | Description                                                                                                                                                                                                               | Setting range        | Setting level | Default |
|-----|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|---------------|---------|
| J04 | Voice language selection | Selects a voice language.<br>1 : Chinese<br>2 : English                                                                                                                                                                   | 1 to 2<br>(-)        | U             | 2       |
| J05 | Voice ON/OFF             | Selects the voice guidance ON or OFF.<br>0 : All voice guidance OFF<br>1 : Only panel operation guidance<br>2 : All voice guidance ON                                                                                     | 0 to 2<br>(-)        | U             | 2       |
| J10 | Back light brightness    | Sets the back light brightness.                                                                                                                                                                                           | 1 to 3<br>(-)        | U             | 3       |
| J11 | Energy-saving mode       | Sets the deactivation time of the LCD back light when no operation is conducted.<br>0 : Back light always activated<br>1 to 20 : Time until the light is turned off                                                       | 0 to 20<br>(sti/min) | U             | 0       |
| J14 | Password                 | If the password is set to a value other than "0000", the password input screen is displayed before the memory switch change screen is displayed by holding down the M switch.<br>★ This data is not initialized with P70. | 0000 to 9999<br>(-)  | S             | 0       |

Table 3 Sewing machine monitoring items

| No. | Item                            | Description                                                                                                                                                                                                                                                                                     | Setting range | Setting level | Default |
|-----|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------|---------|
| N01 | Main software version           | Displays the main software version.                                                                                                                                                                                                                                                             | -             | U             | -       |
| N02 | Panel software version          | Displays the panel software version.                                                                                                                                                                                                                                                            | -             | U             | -       |
| N03 | Sewing machine speed monitor    | Measures the sewing machine speed and displays it.                                                                                                                                                                                                                                              | -             | S             | -       |
| N04 | Input value of pedal A/D        | Displays the input value of pedal A/D.                                                                                                                                                                                                                                                          | -             | S             | -       |
| N05 | Display of principal axis angle | Displays the angle when the up stop position is zero degree.                                                                                                                                                                                                                                    | -             | S             | -       |
| N06 | Display of principal axis angle | Displays the angle when the down stop position is zero degree.                                                                                                                                                                                                                                  | -             | S             | -       |
| N07 | Supply voltage A/D value        | Displays the A/D value of the supply voltage.                                                                                                                                                                                                                                                   | -             | S             | -       |
| N14 | T-motor software version        | Displays the version of the step motor (presser lifter motor) control software.                                                                                                                                                                                                                 | -             | U             | -       |
| N15 | Grease-up stitch count          | Counts the number of stitches to inform you of grease-up timing.<br>Selection of "0" clears the counter.<br>(Unit: x100,000 stitches)<br>The grease-up warning, "E220", is generated at 8 hundred million stitches.<br>The grease-up error, "E221", is generated at 9 hundred million stitches. | -             | S             | -       |

## (2) Further information about memory switch

### ① Selection of the soft-start function (Function setting P07, P08)

The needle thread may fail to interlace with the bobbin thread at the start of sewing when the stitching pitch (stitch length) is small or a thick needle is used. To solve such problem, this function (called "soft-start") is used to limit the sewing speed, thereby assuring successful formation of the starting stitches.

**P 0 8**                      0 : The function is not selected.

1 to 9 : The number of stitches to be sewn under the soft-start mode.

The sewing speed limited by the soft-start function can be changed. **(Function setting No. 07)**

**P 0 7**                      Data setting range : 100 to 1500[ sti/min ] <10 sti/min>

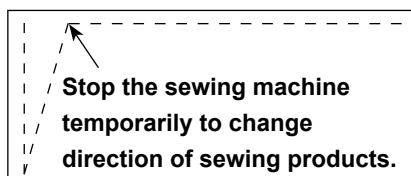
### ② Function of stop immediately after the reverse feed stitching at the start of sewing (Function setting No. P13)

This function temporarily stops the sewing machine even when keeping depressing the front part of the pedal at the time of completion of process of reverse feed stitching at the start of sewing.

It is used when sewing a short length by reverse feed stitching at the start of sewing.

**P 1 3**                      CON : Not provided with the function of temporary stop of the sewing machine immediately after the reverse feed stitching at the start of sewing

STP : Provided with the function of temporary stop of the sewing machine immediately after the reverse feed stitching at the start of sewing.



### ③ Changeover of the needle up/down switch function (Function setting No. P15)

The function of the needle up/down switch is changed over with this function setting number.

**P 1 5**                      0 : Needle up/down correction

1 : One-stitch correction

2 : Continuous half stitch

3 : Continuous one stitch

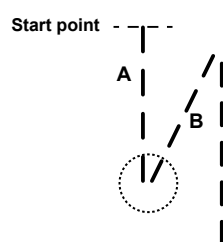
④ **How to balance stitches for [Start Back-Tacking] (Function setting Nos. P18, P19)**

Example) Step 1: Setting stitch number for Start Back-Tacking A and B = 3

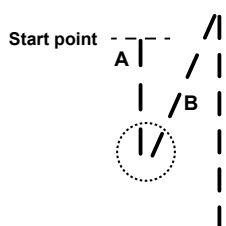
Step 2: Sewing the pattern in normal speed.

Step 3: If unbalanced situation is appeared please correct it as below:

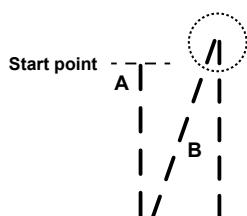
Suggestion: Select the balance stitches for Section A before selecting for B.



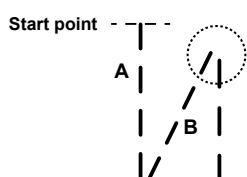
Case 1 : Longer A and shorter B  
Adjustment : [P18] Decrease the set value.  
A becomes shorter and B becomes longer.



Case 2 : Shorter A and longer B  
Adjustment : [P18] Increase the set value.  
A becomes longer and B becomes shorter.



Case 3 : Normal A and longer B  
Adjustment : [P19] Decrease the set value.  
B becomes shorter.



Case 4 : Normal A and shorter B  
Adjustment : [P19] Increase the set value.  
B becomes longer.

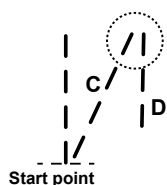
⑤ **How to balance stitches for [End Back-Tacking] (Function setting Nos. P25, P26, P27)**

Example) Step 1: Setting stitch number for Start Back-Tacking C and D = 3

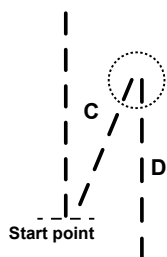
Step 2: Sewing the pattern in normal speed.

Step 3: If unbalanced situation is appeared please correct it as below:

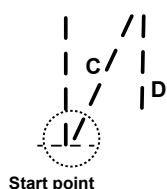
Suggestion: Select the balance stitches for Section C before selecting for D.



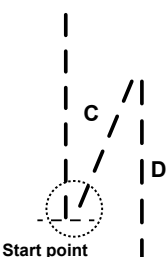
Case 1 : Longer C and shorter D  
Adjustment : [P26] Decrease the set value.  
C becomes shorter and D becomes longer.



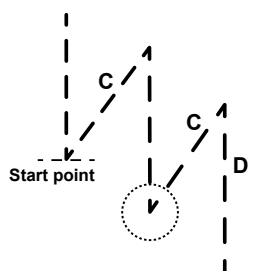
Case 2 : Shorter C and normal D  
Adjustment : [P26] Increase the set value.  
C becomes longer and D becomes shorter.



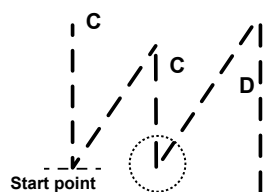
Case 3 : C is longer.  
Adjustment : [P77] Change the set value to such a value that shortens C.



Case 4 : C is short.  
Adjustment : [P77] Increase the set value.  
C becomes longer.



Case 5 : Normal C and longer D  
Adjustment : [P25] Decrease the set value.  
C becomes longer and D becomes shorter.



Case 6 : Normal C and shorter D  
Adjustment : [P25] Increase the set value.  
C becomes shorter and D becomes longer.

## ⑥ How to balance stitches for [Bar Tacking] (Function setting Nos. P32, P33)

Example) Step 1: Setting stitch number for Bar-Tacking A = B = 4 and turns of Bar-Tacking D = 4

Step 2: Sewing the pattern in normal speed.

Step 3: If unbalanced situation is appeared please correct it as below:

|  |                                                                                                                                   |
|--|-----------------------------------------------------------------------------------------------------------------------------------|
|  | <p>Case 1 : Longer A and shorter B<br/>Adjustment : [P32] Decrease the set value.<br/>A becomes shorter and B becomes longer.</p> |
|  | <p>Case 2 : Shorter A and normal B<br/>Adjustment : [P32] Increase the set value.<br/>C becomes longer and D becomes shorter.</p> |
|  | <p>Case 3 : Normal A and longer B<br/>Adjustment : [P33] Decrease the set value.<br/>B becomes shorter.</p>                       |
|  | <p>Case 4 : Normal A and shorter B<br/>Adjustment : [P33] Increase the set value.<br/>B becomes longer.</p>                       |

## ⑦ Reverse revolution to lift the needle after thread trimming (Function setting No. P46)

This function is used to make the sewing machine rotate in the reverse direction after thread trimming to lift the needle bar almost to highest position.

Use this function when the needle appears under the presser foot and it is likely to make scratches on the sewing products of heavy-weight material or the like.

**P 4 6**      ON    Function of making the sewing machine rotate in the reverse direction to lift the needle after thread trimming is provided.

OFF    Function of making the sewing machine rotate in the reverse direction to lift the needle after thread trimming is not provided.

**(Cautions)** The needle bar is raised, by rotating the machine in the reverse direction, almost to the highest dead point. This may result in slip-off of the needle thread. It is therefore necessary to adjust the length of thread remaining after thread trimming properly.

⑧ **Setting of max. sewing speed (Function setting No. P68)**

This function can set the max. sewing speed you desire to use.

Upper limit of the set value varies in accordance with the sewing machine head to be connected.

**P 6 8**      Setting range : 100 to MAX. sti/min <10 / sti/min>

DDL8000AMS : 5000 sti/min

DDL8000ASH : 4500 sti/min

⑨ **Setting of the operation of needle up/down switch after thread trimming (Function setting No. P118)**

One stitch operation can be performed only when the needle up / down compensating switch is pressed at the time of upper stop immediately after turning ON the power switch or upper stop immediately after thread trimming.

**1 1 8**      0 : Normal (Only needle up / down compensating stitching operation)

1 : One stitch compensating stitching operation (upper stop / upper stop) is performed only when aforementioned changeover is made.

⑩ **Selection of the presser foot operation when the power is turned ON (Function setting No. P136)**

The needle bar goes up to its upper position and the presser motor carries out origin retrieval operation immediately after the power is turned ON.

**1 3 6**      0 : Neither the needle bar nor the presser motor (Operates when the back part of pedal is depressed)

1 : Needle bar goes up to its upper position and the presser motor automatically goes up after automatic origin retrieval.

2 : Needle bar automatically goes up to its upper position and the presser motor comes down after automatic origin retrieval.

⑪ **Function of pedal curve selection (Function setting No. 138)**

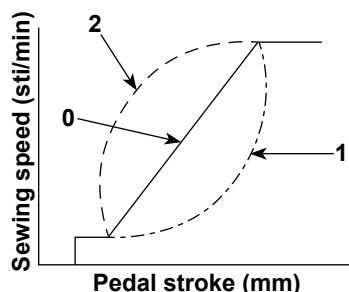
This function can perform the selection of the curve of sewing speed of the sewing machine against the depressing amount of the pedal.

Change to this function when you feel that inching operation is hard or that pedal response is slow.

**1 3 8**      0 : Sewing speed in terms of the depressing amount of the pedal increases linearly.

1 : Reaction to intermediate speed in terms of the depressing amount of the pedal is delayed.

2 : Reaction to intermediate speed in terms of the depressing amount of the pedal is advanced.



## ⑫ Function of reverse feed stitching on the way (Function setting Nos. P139 to P143)

Functions of the limit of number of stitches and thread trimming command can be added to the touch back switch on the sewing machine head.

Function setting P139 Function of reverse feed stitching on the way is selected.

- 1 3 9**      0 : OFF Normal back-tack function  
                  1 : ON Function of reverse feed stitching on the way

Function setting P140 Number of stitches performing reverse feed stitching is set.

- 1 4 0**      Setting range : 0 to 19 stitches

Function setting P141 Effective condition of reverse feed stitching on the way

- 1 4 1**      0 : OFF Inoperative when the sewing machine stops. (The reverse feed stitching on the way functions only while the sewing machine is in operation.)  
                  1 : ON Operative when the sewing machine stops. (The reverse feed stitching on the way functions while both the sewing machine is in operation and is at rest.)

**(Cautions) Either condition is operative when the sewing machine is running.**

Function setting P142 Thread trimming is performed when reverse feed stitching on the way is completed

- 1 4 2**      0 : OFF Without thread trimming  
                  1 : ON Thread trimming is executed.

Function setting P143 Set the sewing speed when the reverse feed stitching at midpoint of sewing is performed.

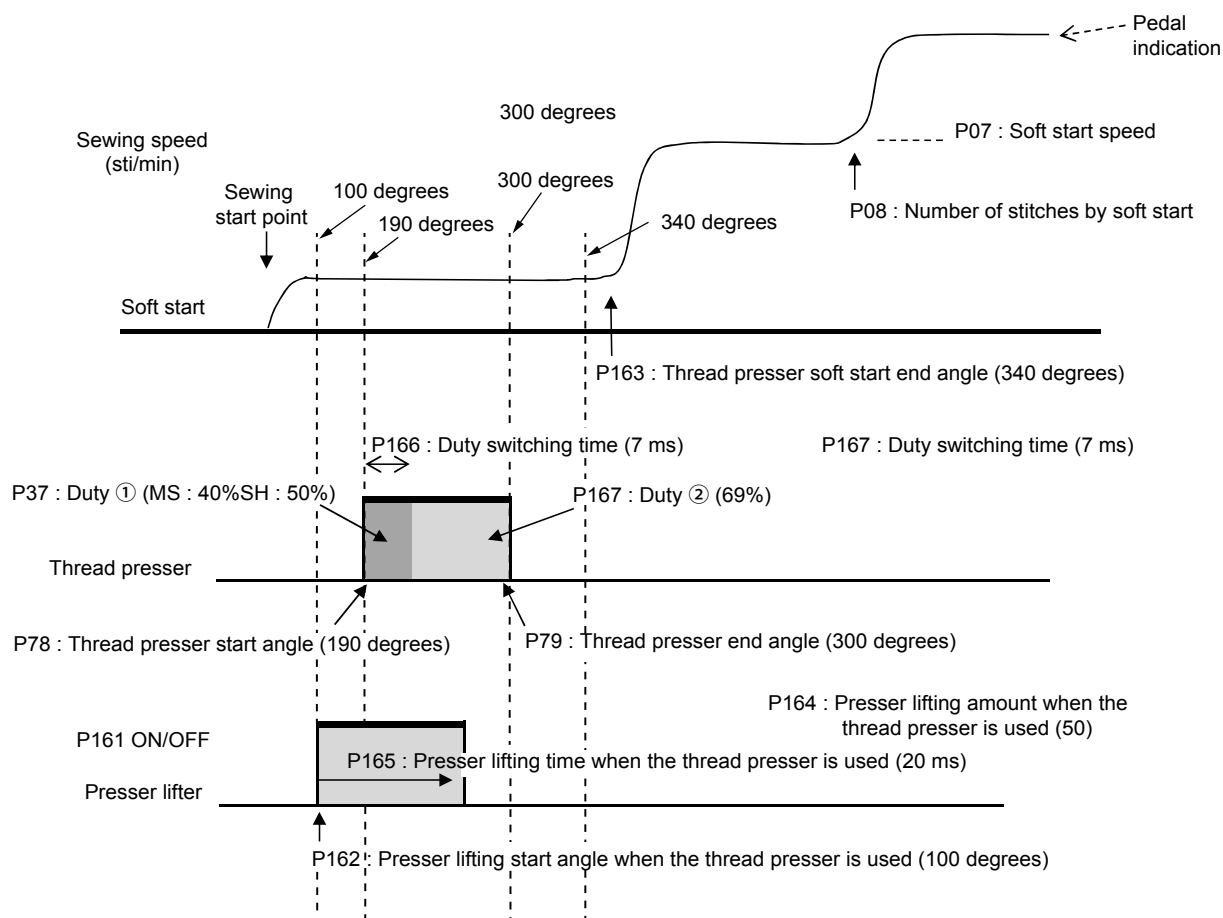
- 1 4 3**      Setting range : 200 to 3000 [sti/min] <10 sti/min>

| Application | Function setting |         |         | Output function                                                                                                                                                                                                                                                                              |
|-------------|------------------|---------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|             | No.P139          | No.P141 | No.P142 |                                                                                                                                                                                                                                                                                              |
| <b>①</b>    | 0                | 0 or 1  | 0 or 1  | It works as normal touch-back switch.                                                                                                                                                                                                                                                        |
| <b>②</b>    | 1                | 0       | 0       | When operating touch-back switch at the time of depressing front part of the pedal, reverse feed stitching as many as the number of stitches specified by the function setting No. 140 can be performed.                                                                                     |
| <b>③</b>    | 1                | 1       | 0       | When operating touch-back switch at the time of either stop of the sewing machine or depressing front part of the pedal, reverse feed stitching as many as the number of stitches specified by the function setting No. 140 can be performed.                                                |
| <b>④</b>    | 1                | 0       | 1       | When operating touch-back switch at the time of depressing front part of the pedal, automatic thread trimming is performed after reverse feed stitching as many as the number of stitches specified by the function setting No. 140 has been performed.                                      |
| <b>⑤</b>    | 1                | 1       | 1       | When operating touch-back switch at the time of either stop of the sewing machine or depressing front part of the pedal, automatic thread trimming is performed after reverse feed stitching as many as the number of stitches specified by the function setting No. 140 has been performed. |

### Actions under each setting state

- ①** Used as the normal reverse feed stitching touch-back switch.
- ②** Used for reinforcing seam (press sewing) of the pleats. (It works only while the sewing machine is in operation)
- ③** Used for reinforcing seam (press sewing) of the pleats. (It works either when the sewing machine stops or when the sewing machine is running.)
- ④** Used as starting switch for reverse feed stitching at the sewing end. (Used as the substitute for thread trimming by depressing back part of the pedal. It works only while the sewing machine is in operation. This is especially effective when the sewing machine used as the sewing machine for standing work.)
- ⑤** Used as starting switch for reverse feed stitching at the sewing end. (Used as the substitute for thread trimming by depressing back part of the pedal. It works either when the sewing machine stops or when the sewing machine is running. It is especially effective when the sewing machine is used as the standing- work machine.)

- ⑬ **Soft start**
- ⑭ **Thread presser**
- ⑮ **Presser lifter**



#### ⑩ 8000A BT solenoid impact absorbing

The initial value of the memory switch is set so that the lower impact sound of touch back is lowered with stitching pitch of 2 to 4 mm at the time of shipment.

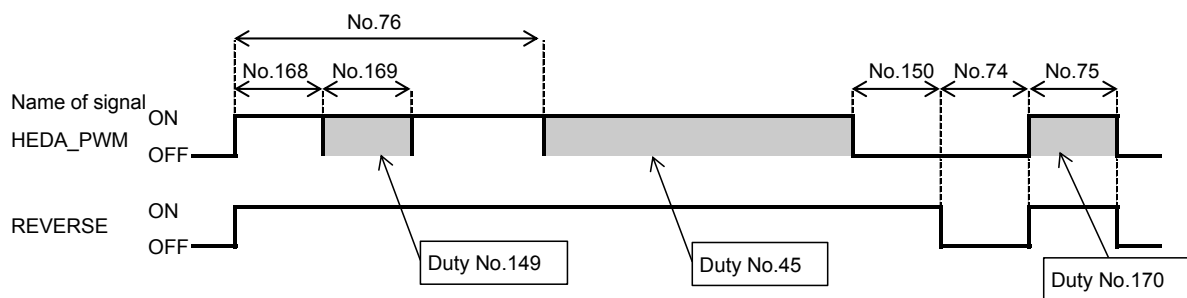
If the impact sound at touch back is large, change in the braking timing and Duty described below can reduce the impact sound.

Apply brake immediately before the solenoid for impact sound reduction reaches the stroke end when the touch back solenoid is activated.

(Apply brake at P149 Duty for P169 time after passage of P168 time.)

Apply brake immediately before the solenoid for impact sound reduction reaches the stroke end when the touch back solenoid is deactivated.

(Apply brake at P170 Duty for P75 time after passage of P74 time.)



If the memory switch described above is changed, multi-layer stitches of automatic reverse are not matched each other, and therefore, change in the initial position of the automatic reverse is also necessary.

To match the stitches, change the values of memory switches: P18, P19, P25, P26, P32, P33, and P77.

\* Refer to ④ , ⑤ , and ⑥ for further information.

| Memory switch No.                  | Initial value |
|------------------------------------|---------------|
| P45 BT holding Duty setting        | 30 [%]        |
| P74 BT off redrive waiting time    | 3 [ms]        |
| P75 BT off redrive time            | 70 [ms]       |
| P76 BT suction time                | 200 [ms]      |
| P149 BT initial pause Duty setting | 50 [%]        |
| P150 REVERSE signal off time       | 2 [ms]        |
| P168 BT initial suction time       | 25 [ms]       |
| P169 BT initial pause time         | 40 [ms]       |
| P170 BT off redrive Duty setting   | 10 [%]        |

### (3) List of error code

| Error number | Description                                                        | How to correct                                                                                                                                                                                                                                       |
|--------------|--------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| E001         | High-voltage error (320 V or more)                                 | Turn the power OFF. Check the supply voltage.                                                                                                                                                                                                        |
| E002         | Low-voltage error (170 V or less)                                  | Turn the power OFF. Check the supply voltage.                                                                                                                                                                                                        |
| E003         | CPU communication fault                                            | Turn the power OFF. Check the connection of the connector to the operation panel and the cable.                                                                                                                                                      |
| E005         | Pedal connection fault                                             | Turn the power OFF. Check the connection of the connector to the pedal and the cable.                                                                                                                                                                |
| E007         | Main shaft rotation fault                                          | Check whether the main shaft motor is locked by turning the pulley. Check the connection encoder cable and motor power cable to the connectors.<br>Check whether the supply voltage is normal. Check whether the sewing speed is set extremely high. |
| E009<br>E011 | Encoder Z-phase detection fault                                    | Turn the power OFF. Check the connection of the motor encoder cable to the connector.                                                                                                                                                                |
| E014         | Encoder AB-phase detection fault                                   | Turn the power OFF. Check the connection of the motor encoder cable to the connector.                                                                                                                                                                |
| E015         | Main shaft motor overcurrent error                                 | Turn the power OFF. Then, re-turn the power ON.                                                                                                                                                                                                      |
| E017         | Machine head tilting error                                         | Raise the machine head. Then, turn the power OFF and re-turn the power ON. Check whether the machine head tilt switch has broken.                                                                                                                    |
| E020         | Main shaft rotation fault                                          | Turn the power OFF. Check the connection of the main shaft motor encoder cable and motor power cable to the connectors.                                                                                                                              |
| E030         | Communication fault between the main CPU and the presser motor CPU | Turn the power OFF. Check whether the presser motor is locked. Check the connection of the presser motor to the connector.                                                                                                                           |
| E031         | Presser motor overcurrent error                                    | Turn the power OFF. Check whether the presser motor is locked. Check the connection of the presser motor to the connector.                                                                                                                           |
| E032         | Presser motor origin retrieval error                               | Turn the power OFF. Check whether the presser motor is locked. Check the connection of the presser motor and origin sensor to the connectors.                                                                                                        |
| E040         | Crystal oscillator fault                                           | Turn the power OFF. Change the panel PCB with a new one.                                                                                                                                                                                             |
| E220         | Grease shortage warning                                            | Carry out maintenance for replenishing the grease. Then, reset the error (to clear N15).                                                                                                                                                             |
| E221         | Grease-shortage error                                              | Carry out maintenance for replenishing the grease. Then, reset the error (to clear N15).                                                                                                                                                             |

A blank sheet of lined paper with horizontal ruling lines. The top half of the page is a large, empty rectangular area. The bottom half of the page contains horizontal lines for writing, with a margin at the top of this section. The lines are evenly spaced and extend across the width of the page.

## 6. Electrical component and the like

### (1) Control BOX

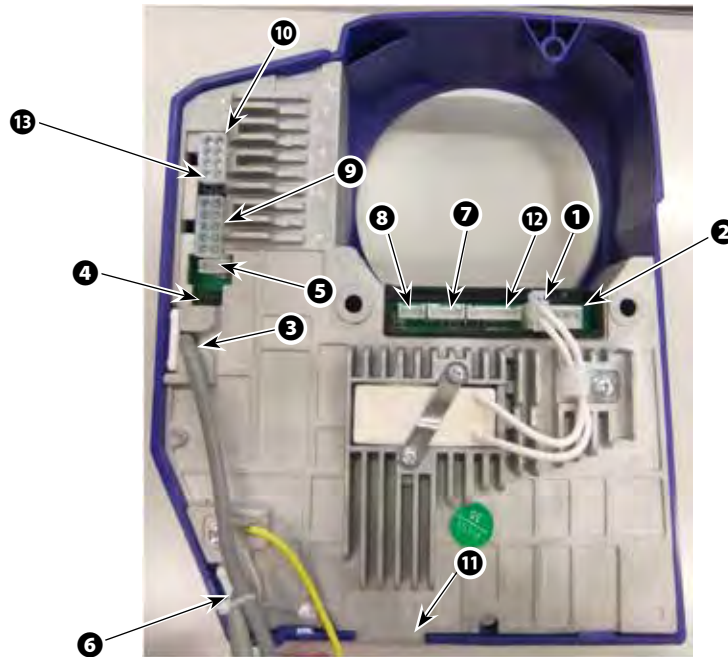


Table 1 Input/output connector arrangement in control box

| No. | Connector | Name of the destination to connect                         | Remark                                   |
|-----|-----------|------------------------------------------------------------|------------------------------------------|
| ①   | J4        | Regenerative resistor                                      |                                          |
| ②   | J6        | Main motor power                                           |                                          |
| ③   | J7        | Pedal sensor *                                             | The connectors exist in the control box. |
| ④   | J8        | Main software rewrite                                      |                                          |
| ⑤   | J9        | For production control                                     |                                          |
| ⑥   | J10       | AC power input                                             | The connectors exist in the control box. |
| ⑦   | J12       | LED hand light/hand switch                                 |                                          |
| ⑧   | J15       | Panel I/F                                                  |                                          |
| ⑨   | J17       | Thread presser solenoid & optional output                  |                                          |
| ⑩   | J18       | Presser motor power/origin sensor                          |                                          |
| ⑪   | J19       | Thread trimming, reverse feed solenoid/oil quantity sensor |                                          |
| ⑫   | CN1       | Main motor encoder                                         |                                          |
| ⑬   | CN15      | Presser motor software rewrite                             |                                          |

\* Applicable only to the standard pedal specification. Standing pedal specification is not available.

Table 2 Optional connector pin arrangement

| No. | Connector | Pin | Item                                    | Remark             |
|-----|-----------|-----|-----------------------------------------|--------------------|
| 1   | J17       | 1   | Suction solenoid valve (+)              |                    |
| 2   |           | 2   | Suction solenoid valve (–)              |                    |
| 3   |           | 3   | Thread hauling solenoid valve (+)       |                    |
| 4   |           | 4   | Thread hauling solenoid valve (–)       |                    |
| 5   |           | 5   | Needle thread holdingsolenoid valve (+) |                    |
| 6   |           | 6   | Needle thread holdingsolenoid valve (–) |                    |
| 7   |           | 7   | Thread presser solenoid (+)             | Standard functions |
| 8   |           | 8   | Thread presser solenoid (–)             | Standard functions |
| 9   |           | 9   | Condensation solenoid (+)               |                    |
| 10  |           | 10  | Condensation solenoid (–)               |                    |

Housing arrangement

Fastening claw

|    |   |   |   |   |
|----|---|---|---|---|
| 9  | 7 | 5 | 3 | 1 |
| 10 | 8 | 6 | 4 | 2 |

|                            |             |             |
|----------------------------|-------------|-------------|
| JUKI part No.:             | HK034640000 | HK034610100 |
| Part name                  | Pin contact | Housing     |
| Manufacturer               | Molex Inc   | Molex Inc   |
| Model name of manufacturer | 5556T       | 5557-NR     |
| Remark                     |             |             |

This is different from the pin arrangement specified by the manufacturer. Refer to the figure above for pin arrangement numbers.

## (2) Panel

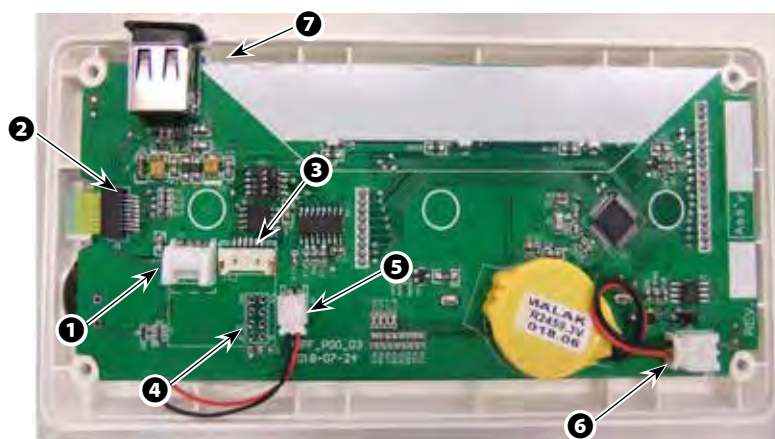
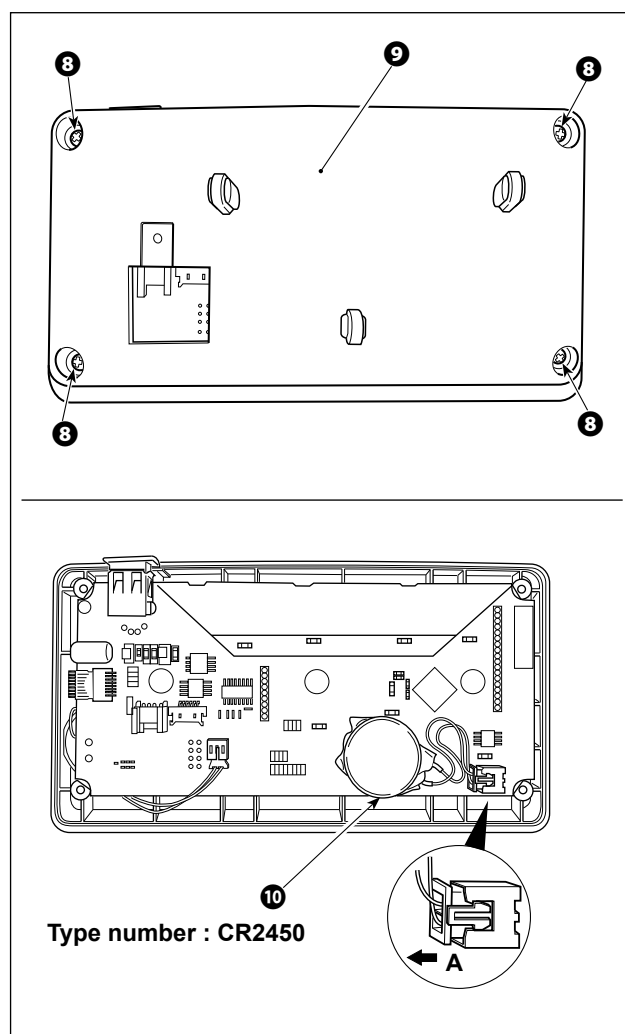


Table 3 Panel input/output connector arrangement

| No. | Connector | Name of the destination to connect | Remark |
|-----|-----------|------------------------------------|--------|
| ❶   | J1        | Main I/F                           |        |
| ❷   | J2        | Membrane switch                    |        |
| ❸   | J2_1      | Audio software rewrite             |        |
| ❹   | J3        | Panel software rewrite             |        |
| ❺   | J5        | Audio speaker                      |        |
| ❻   | B1        | Clock battery                      |        |
| ❼   | USB       | USB                                |        |

[How to remove the battery]



- 1) Remove panel from the main body of sewing machine.
- 2) Loosen screw ❸ from the rear surface of the operation panel. Detach case ❹.

- 3) ❿ is the battery for clock.  
Type number: CR2450
- 4) Pull out the connector in the direction of A. Detach the whole main body of battery together with its case from the PCB. (The battery is secure on the PCB with double-faced adhesive tape.)

**(Caution)** The operation panel has a built-in battery in order to operate the clock even when the power is turned OFF.

Be sure to dispose of the battery following the local laws and regulations.

## 7. Maintenance

### (1) Oil quantity check

### (2) Cleaning

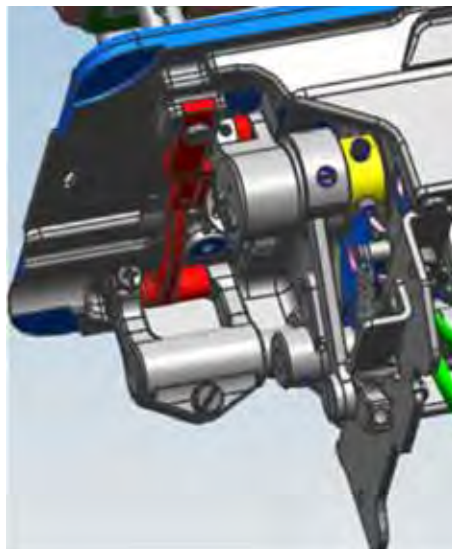
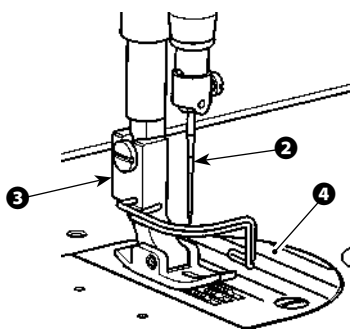


#### **WARNING :**

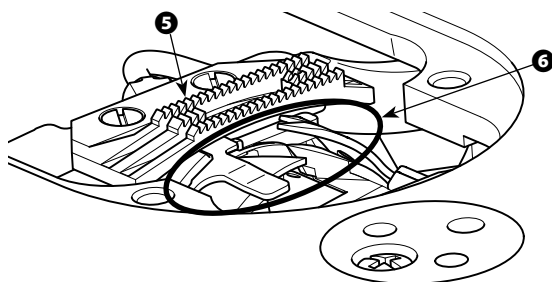
Be sure to turn the power OFF before the following work in order to prevent personal injury due to unintentional starting of the sewing machine.

### Standard adjustment

#### (1) Oil quantity check



#### (2) Cleaning



| Adjustment Procedure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Results of Improper Adjustment |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| <p>For your long usage, the following routines (checks and maintenance) are recommended:</p> <p><b>(1) Oil quantity check</b></p> <p>1. When the power is turned on, use the product in the state that the oil maximum amount warning  and oil amount running out warning  are not displayed.</p> <p><b>(2) Cleaning</b></p> <p>1. Remove needle ❷, presser foot ❸ and throat plate ❹.</p> <p>2. Remove dust adhered to feed dog ❺ and thread trimmer unit ❻ with a soft brush or cloth.</p> <p>3. Tilt the machine head and wipe out the dirt of bobbin case and the like with soft cloth, and confirm that there is no scratch. Wipe out with the cloth dust and hook oil drained in the under cover near the hook.</p> |                                |

### (3) Application of appropriate grease

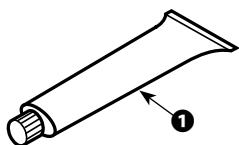
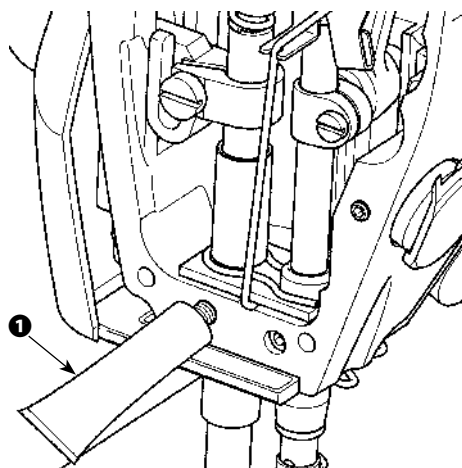
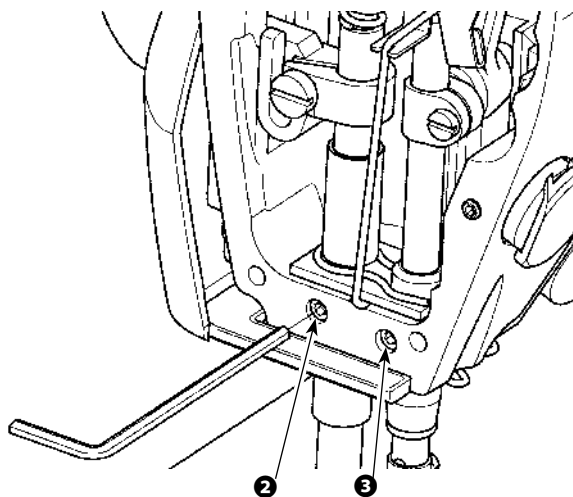
**WARNING :**

Be sure to turn the power OFF before the following work in order to prevent personal injury due to unintentional starting of the sewing machine.

#### Standard adjustment

##### 1) Grease-up warning and grease-up error

##### 2) Needle bar lower bushing and presser bar bushing



| Description                                  | Part No. | Remark          |
|----------------------------------------------|----------|-----------------|
| JUKI GREASE A TUBE ❶<br>(Appropriate grease) | 40006323 | Capacity: 10 g  |
| JUKI GREASE A<br>(Product equivalent to ❶ )  | 23640204 | Capacity: 100 g |

| Adjustment Procedure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Results of Improper Adjustment |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| <p><b>(3)Application of appropriate grease</b></p> <p>In ordinary usage, it is unnecessary to replenish the appropriate grease ❶ (JUKI GREASE A). Under particularly rigorous operating conditions, however, periodic replenishment of the appropriate grease ❶ (JUKI GREASE A) is effective (approximately once every one to two years).</p> <p><b>(Cautions)</b></p> <ol style="list-style-type: none"> <li><b>1. Do not apply oil to the sections which are lubricated with grease.</b></li> <li><b>2. Be aware that grease can leak from the thread take-up cover and needle bar if the amount of grease is excessive.</b></li> <li><b>3. Be sure to use JUKI GREASE A ❶.</b></li> </ol> <p><b>1) Grease-up warning and grease-up error</b></p> <p>When the machine needs replenishment of grease, error E220 warning against shortage of grease and E221 grease-up error are displayed.</p> <p>Once the alarm is displayed, replenish grease according to the instructions 2) to 4).</p> <p>To cancel the error, refer to "4.-(3)-[3]-1 How to cancel grease-up error".</p> <p><b>2) Needle bar lower bushing and presser bar bushing</b></p> <p><b>(Caution) Carry out greasing with the needle bar installed.</b></p> <ol style="list-style-type: none"> <li>1. Remove the face plate.</li> <li>2. Remove presser bar bushing greasing screw ❷ and needle bar lower bushing greasing screw ❸ (only for the DDL-8000A*-MS) with a hexagonal wrench.</li> <li>3. Remove the cap of JUKI GREASE A TUBE ❶. Insert its tip into the oil hole and replenish grease from exclusive JUKI GREASE A ❶.</li> </ol> <p>At this time, add grease until it overflows the oil hole.</p> <ol style="list-style-type: none"> <li>4. Push overflowing JUKI GREASE A ❶ with the oil filling screw into the oil hole.</li> <li>5. Wipe the excess of JUKI GREASE A ❶ off the area around the oil hole.</li> </ol> <p><b>(Caution) When a lubricant is newly replenished, operate the sewing machine for about 10 seconds of idling. A surplus amount of JUKI GREASE A ❶ may be discharged at that time. Wipe it off then. Repeat this operation several times and use the sewing machine regularly after the generation of the excessive JUKI GREASE A ❶ has disappeared.</b></p> |                                |

### (3) Application of appropriate grease



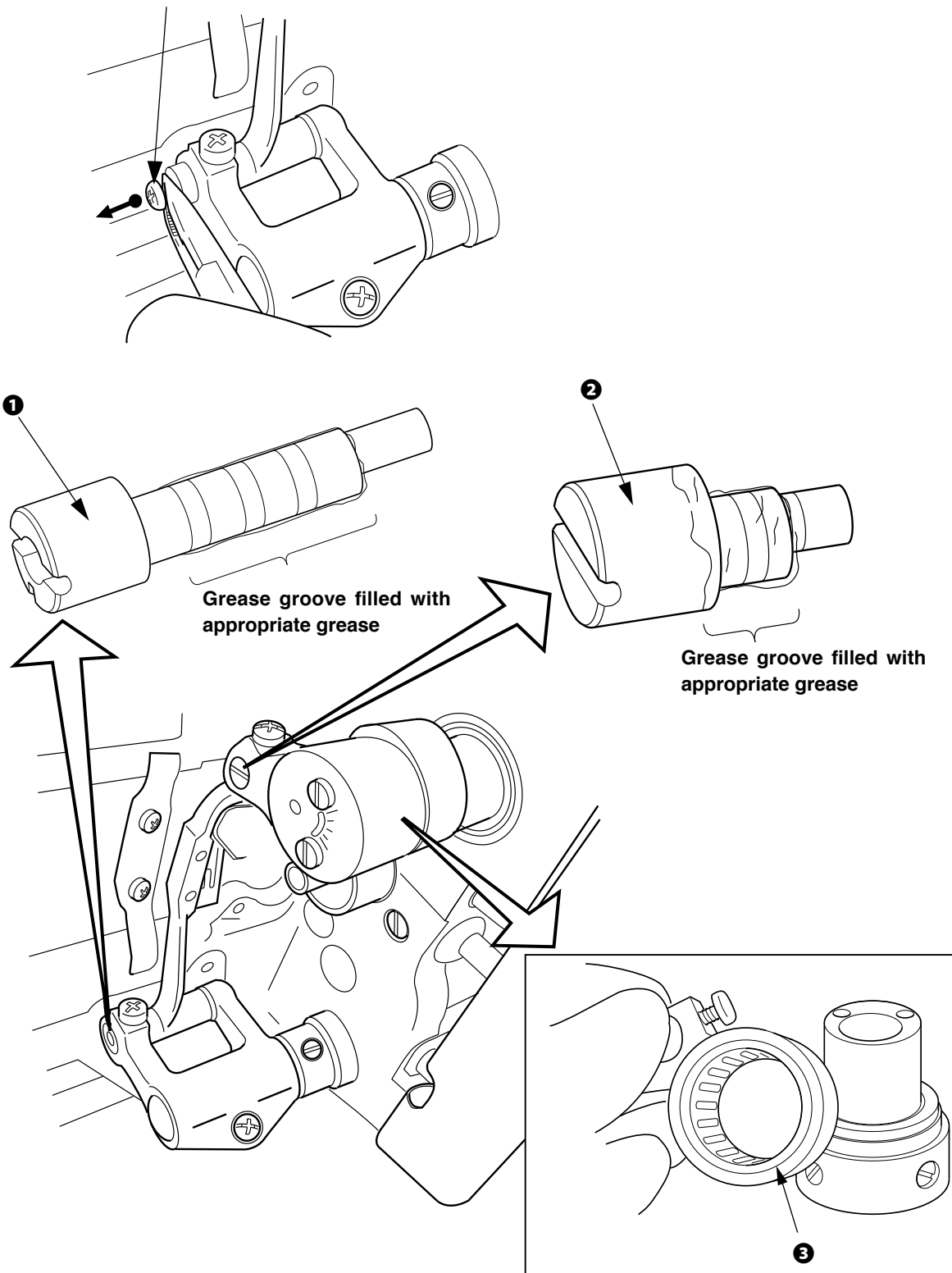
#### **WARNING :**

Be sure to turn the power OFF before the following work in order to prevent personal injury due to unintentional starting of the sewing machine.

#### **Standard adjustment**

### **3) Feed bar mechanism**

Loosen the setscrew and screw in and pull the M4 screw.



| Adjustment Procedure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Results of Improper Adjustment                                                                                                                                                                                                                                                                                                                                         |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>3) Feed bar mechanism</b></p> <ol style="list-style-type: none"> <li>1. Take out the horizontal feed bar shaft ❶ feed the appropriate grease to the grease groove.</li> <li>* The horizontal feed bar shaft ❶ is processed to have a sacrifice M4 screw.<br/>Use an M4 screw and pull it out easily by means of small cutting pliers.</li> <li>2. Remove the vertical feed bar shaft ❷ and replenish the appropriate grease to the grease groove.</li> <li>3. Also feed the appropriate grease to the bearing ❸ of the vertical feed cam interior.</li> <li>4. At the time of reassembly after the disassembly of various parts, apply JUKI GREASE A to the sliding surfaces of the feed bar mechanism.</li> </ol> | <ul style="list-style-type: none"> <li>○ Lubrication is continued while hook oil is scattered around the vertical feed cam.</li> <li>○ When the reduced amount of hook oil is used, a small amount of application is acceptable.</li> <li>○ If too much oil is applied, dark contamination is caused by the hook oil and the material cloth may be stained.</li> </ul> |

### (3) Application of appropriate grease

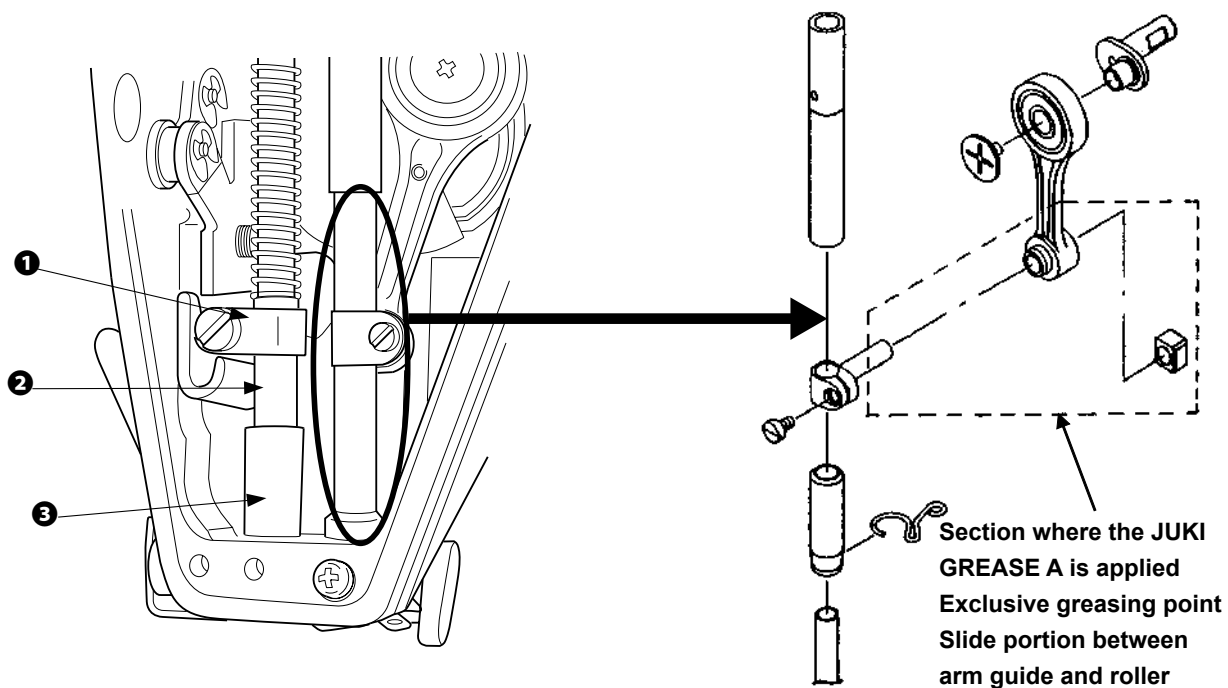


#### **WARNING :**

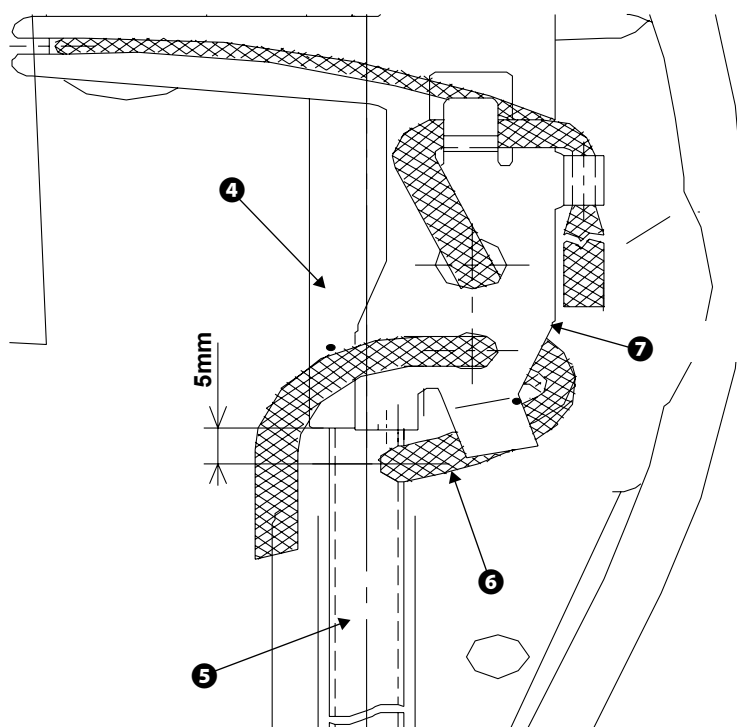
Be sure to turn the power OFF before the following work in order to prevent personal injury due to unintentional starting of the sewing machine.

#### **Standard adjustment**

#### **4) Face plate mechanism**



[DDL-8000A\*-SH, SJ]





### (3) Application of appropriate grease



**WARNING :**

Be sure to turn the power OFF before the following work in order to prevent personal injury due to unintentional starting of the sewing machine.

#### Standard adjustment

##### 5) Inside a gear box



Apply exclusive JUKI GREASE A to the whole mechanical section.

| Adjustment Procedure                                                                                                                                                                                                                                                                                                                                                                                                                                | Results of Improper Adjustment |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| <p><b>5) Inside a gear box</b></p> <ul style="list-style-type: none"> <li>* It is prohibited to use oil for the mechanism element inside a gear box because of special surface treatment and a JUKI GREASE A lubrication.</li> <li>1. Apply grease to the mechanism element inside a gear box.</li> <li>* When you have torn it down including removal of the shaft, apply grease to a grease groove and fluctuation part of each shaft.</li> </ul> |                                |

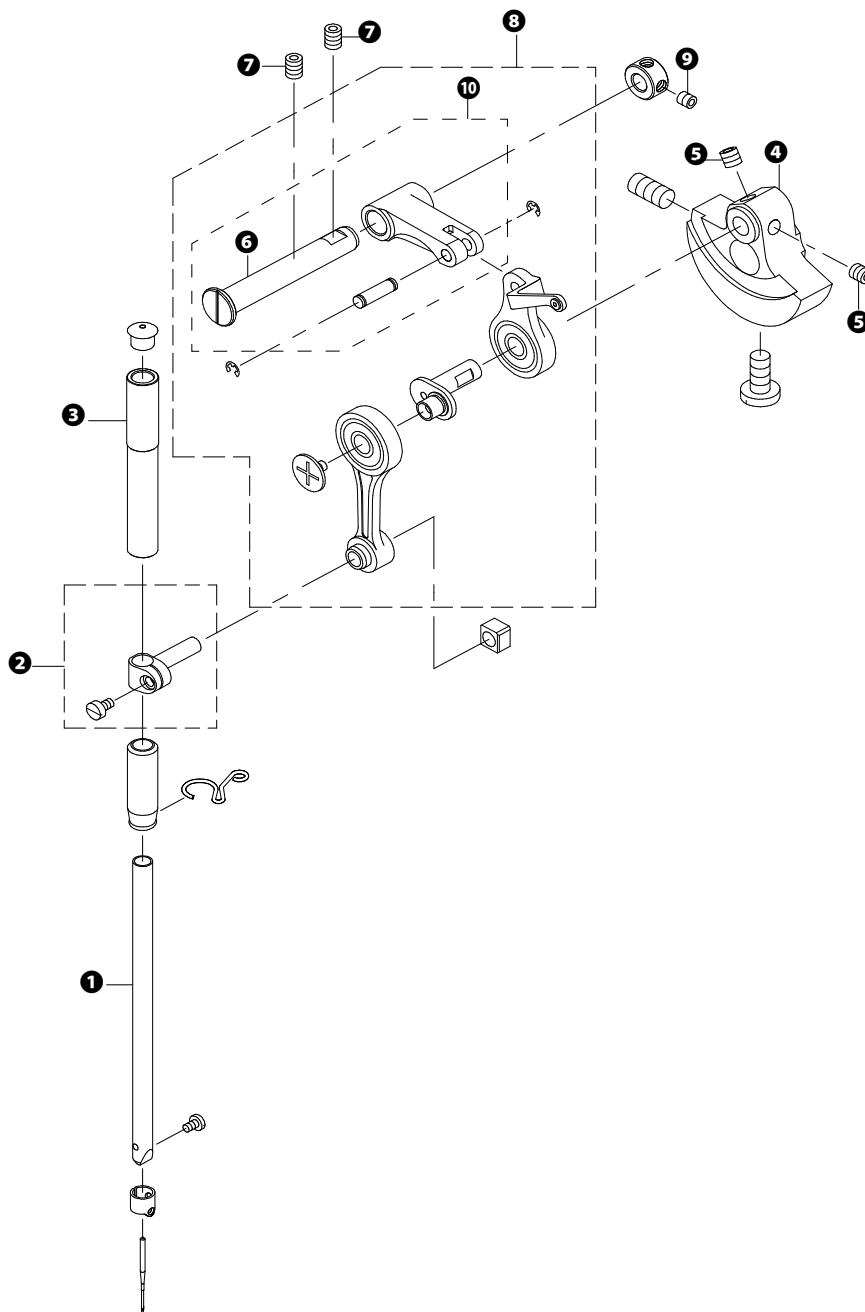
#### (4) Thread take-up lever mechanism



#### **WARNING :**

Be sure to turn the power OFF before the following work in order to prevent personal injury due to unintentional starting of the sewing machine.

#### Standard adjustment



Info about the appropriate grease

| Part name     | Part No. | Remark          |
|---------------|----------|-----------------|
| JUKI grease A | 40006323 | Capacity: 10 g  |
|               | 23640204 | Capacity: 100 g |

| Adjustment Procedure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |                                                                       | Results of Improper Adjustment |  |         |          |          |                                                                       |                                   |          |                             |                        |          |       |                                          |          |       |                                                                                                                                                                        |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-----------------------------------------------------------------------|--------------------------------|--|---------|----------|----------|-----------------------------------------------------------------------|-----------------------------------|----------|-----------------------------|------------------------|----------|-------|------------------------------------------|----------|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>(Important) No lubrication is needed for the thread take-up lever.</b></p> <p><b>(Maintenance-free mechanism)</b></p> <p>When adjusting the thread take-up lever mechanism, the following items shall be observed:</p> <p>[Replacement of thread take-up lever]</p> <ol style="list-style-type: none"><li>1. Remove the needle bar ❶ and the needle bar connector ❷.</li><li>2. Draw out the needle bar upper bushing ❸.</li></ol> <p><b>(Caution) Be careful not to hurt the needle bar upper bushing ❸.</b></p> <table><tr><th colspan="2">Needle bar upper bushing ❸</th><th>Remarks</th></tr><tr><td>Part No.</td><td>23608003</td><td>It is positioned at a concave 0.5mm from the upper surface of an arm.</td></tr></table> <ol style="list-style-type: none"><li>3. Loosen two needle bar crank setscrews ❹ of the main shaft counterbalance ❶.</li><li>4. Loosen two thread take-up lever crank shaft setscrews ❷.<br/>(The thread take-up lever support shaft ❸ is processed flat.)</li><li>5. Loosen the thrust collar setscrew ❹ of the thread take-up lever crank.</li><li>6. Pull out the crank shaft set ❺ toward you, except the thrust collar.</li><li>7. Remove the thread take-up lever (coupling) ❸.</li></ol> <table><tr><th>Thread take-up lever (coupling) ❸</th><th>Part No.</th><th>Thread take-up lever stroke</th></tr><tr><td>Standard specification</td><td>40174341</td><td>110mm</td></tr><tr><td>Specification for heavy-weight materials</td><td>40191118</td><td>108mm</td></tr></table> <ol style="list-style-type: none"><li>8. Reassembly can be carried out in the reverse order for disassembly. At that time, however, the items specified below shall be strictly observed.</li><li>9. Insert the thread take-up lever unit to the position where it comes in contact with the main shaft counterbalance ❶. Install the crank shaft set ❺ in the order of the thread take-up lever crank, the thrust collar, and the arm.</li><li>10. Fix the needle bar crank setscrew ❹.</li></ol> <p><b>(Caution) The first screw in the revolving direction shall be made to coincide with the flat section of the shaft.</b></p> <ol style="list-style-type: none"><li>11. Remove thrust rattles from the thread take-up lever crank shaft ❸ and fix it being pinched by the thrust collar and the E ring.<br/>(Make thrust adjustments so that there are no thrust rattles and the thread take-up lever crank can slide smoothly.)</li><li>12. Drive the needle bar upper bushing ❸ to install the parts of needle bar ❶ and needle bar connector ❷.</li><li>13. Turn the hand wheel by hand several turns in forward direction and fix the thread take-up lever crank shaft ❸ by means of the thread take-up lever crank shaft setscrew ❷, keeping adequate needle bar centering.</li></ol> <p><b>(Cautions) 1. Improper centering of the needle bar ❶ causes the thread take-up lever mechanism to be loaded inadequately, thus greatly affecting the durability.</b></p> <ol style="list-style-type: none"><li>2. Coincidence is absolutely needed between the flat section of the thread take-up lever crank shaft ❸ and the screw.</li><li>3. After confirming that there is no thrust backlash, assemble the take-up lever thrust collar.</li></ol> |          |                                                                       | Needle bar upper bushing ❸     |  | Remarks | Part No. | 23608003 | It is positioned at a concave 0.5mm from the upper surface of an arm. | Thread take-up lever (coupling) ❸ | Part No. | Thread take-up lever stroke | Standard specification | 40174341 | 110mm | Specification for heavy-weight materials | 40191118 | 108mm | <p>○ If this section is hurt, this will be a cause of seizure.</p> <p>○ If there is thrust backlash, this will be a cause of breakage of the thread take-up lever.</p> |
| Needle bar upper bushing ❸                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |          | Remarks                                                               |                                |  |         |          |          |                                                                       |                                   |          |                             |                        |          |       |                                          |          |       |                                                                                                                                                                        |
| Part No.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 23608003 | It is positioned at a concave 0.5mm from the upper surface of an arm. |                                |  |         |          |          |                                                                       |                                   |          |                             |                        |          |       |                                          |          |       |                                                                                                                                                                        |
| Thread take-up lever (coupling) ❸                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Part No. | Thread take-up lever stroke                                           |                                |  |         |          |          |                                                                       |                                   |          |                             |                        |          |       |                                          |          |       |                                                                                                                                                                        |
| Standard specification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 40174341 | 110mm                                                                 |                                |  |         |          |          |                                                                       |                                   |          |                             |                        |          |       |                                          |          |       |                                                                                                                                                                        |
| Specification for heavy-weight materials                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 40191118 | 108mm                                                                 |                                |  |         |          |          |                                                                       |                                   |          |                             |                        |          |       |                                          |          |       |                                                                                                                                                                        |

## (5) Initialize

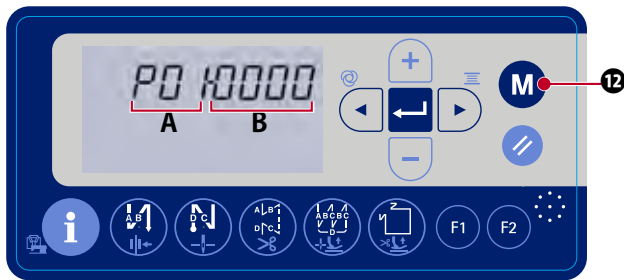
All the data (including the set data for F1 and F2 of the panel and polygonal-shape stitching data) other than P72, P73, P123, J4 will be initialized.

- 1) Activate the memory switch No. P70.  
(Refer to "4.-(3) Head selection" [Memory switch No. P70].)
- 2) Select a different head and select the head again.  
Example) When two heads are selected

Change "2" to "3", press  put back "3" to "2", and press .

## (6) Memory switch data reset

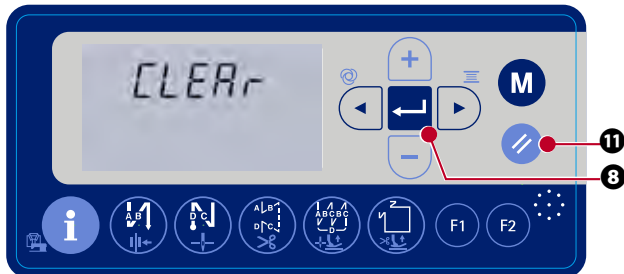
Once the memory switch data that you arbitrarily changed is memorized, the memorized data can be restored any number of times until initialization is conducted.



- 1) Activate the memory switch in the user level.  
(Refer to "4.-(2)-[1] User level".)



- 2-1) Hold down  13 for 3 seconds on the mode screen, and all the function setting data can be memorized and "SAVE" is displayed on the screen for a moment.



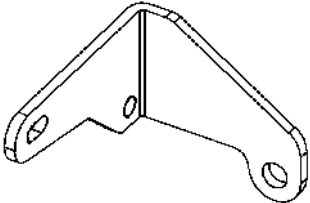
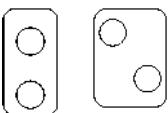
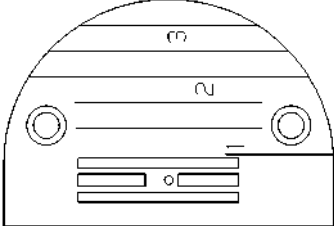
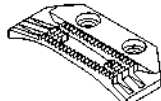
- 2-2) Hold down  11 for 6 seconds in the normal sewing state, the data initialization confirmation screen is displayed.
- 3) Press  8, and the memory switch data memorized in the step 2-1) is reset and the normal sewing state is restored.

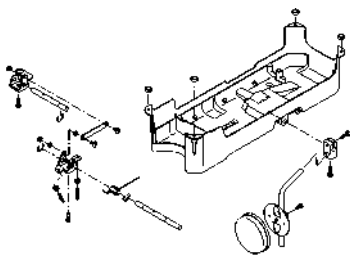
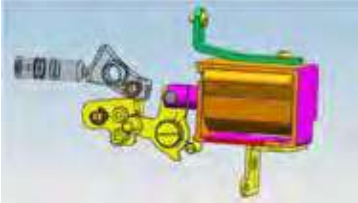
## 8. Optional

### (1) Optional list

| No. | Part name                                      | S-MS | S-SH | B-MS | B-SH (SJ) | Remarks |
|-----|------------------------------------------------|------|------|------|-----------|---------|
| 1   | Minute presser lifting                         | ○    | ○    | ○    | ○         |         |
| 2   | Ultrashort remain<br>(three teeth, four teeth) | ○    |      | ○    |           |         |
| 3   | Knee lifting device                            | ○    | ○    | ○    | ○         |         |
| 4   | Condensation sewing device                     | ○    | ○    |      |           |         |

### (2) Optional part number

| Part name                                                                                                                                                                                                                                                                                                                                                                                                                                       | Type                                                                  | Part No.                                                          | Remarks                                                                                                                                                                                              |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|-------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ① Minute presser lifting<br>                                                                                                                                                                                                                                                                                                                                  | MICRO_LIFTING_DEVICE_ASM_FOR_S<br>(Optional assembly)                 | 40194389                                                          |                                                                                                                                                                                                      |
| ② Ultrashort remain kit<br><br>                                                                                                                                                                                                                                           | SUPER_SHORT_THREAD_KIT_900B<br><br>FEED_DOG_I_ST<br>THROAT_PLATE_IB_R | 4021086<br>└─ 40196501<br>└─ 40191505<br><br>40164902<br>40163071 | Screws (4 pieces)<br>Spacers (2 pieces)<br><br>Feed dogs (4 pieces)<br>Throat plates (4 pieces)<br><b>(Caution) If this set is used with the H specifications, the throat plate may be damaged.</b>  |
| <br><br><br><br> | SUPER_SHORT_THREAD_KIT_900B<br><br>FEED_DOG_A_<br>THROAT_PLATE_A      | 4021086<br>└─ 40196501<br>└─ 40191505<br><br>11417714<br>11417615 | Screws (4 pieces)<br>Spacers (2 pieces)<br><br>Feed dogs (3 pieces)<br>Throat plates (3 pieces))<br><b>(Caution) If this set is used with the H specifications, the throat plate may be damaged.</b> |

| Part name                                                                                                         | Type                                        | Part No. | Remarks                                              |
|-------------------------------------------------------------------------------------------------------------------|---------------------------------------------|----------|------------------------------------------------------|
| ③ Knee lifting device<br>        | KNEEL_<br>LIFTER_ASM<br>(Optional assembly) | 40217286 |                                                      |
| ④ Condensation sewing device<br> | CONDENSE_<br>STITCH_<br>DEVICE              | 40216235 | B-MS, SH, and SJ are<br>installed as standard items. |

### (3) Optional mounting

#### 1) Ultrashort remain kit

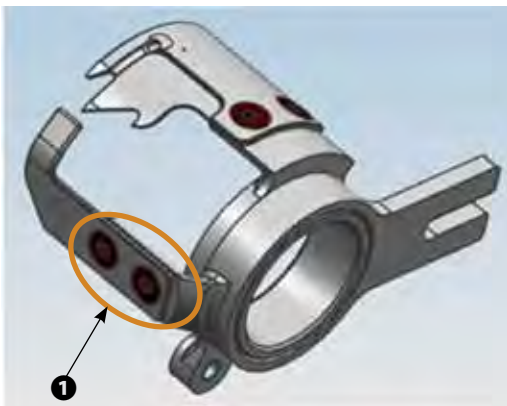
The optional ultrashort remain set can be used for shortening the remaining thread under the cloth by pinching a spacer between the knife and the knife base and bringing the trim position closer to the under cloth. Accordingly, the knife comes closer to the throat plate and the feed dog, and in the case of the standard knife and the standard feed dog, they interfere with the knife.

Also, depending on the variation in parts or assembling state, the engagement of the knife or the knife pressure may change and the sharpness adjustment may be required. In such a case, adjust the assembly following the procedure below.

**(Caution)** The optional ultrashort remain gauge set is a mechanical part to be used for shortening the remaining thread under the cloth by pinching a spacer between the knife and the knife base and bringing the trim position closer to the under cloth. Also with S type, make sure that the presser pressure is 3kgf or lower. It cannot be used with the H type. The presser pressure may cause breakage.

#### [1] Replacement procedure

1) Loosen the setscrews ❶ (2 pcs.) of the thread trimmer knife.



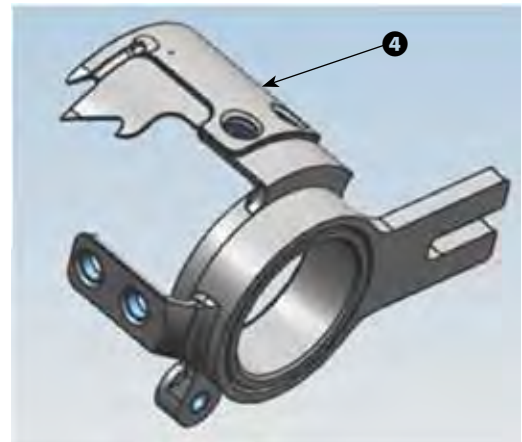
2) Remove the thread trimmer knife ❷.



3) Loosen the setscrews ❸ (2 pcs.) of the thread spreading knife.



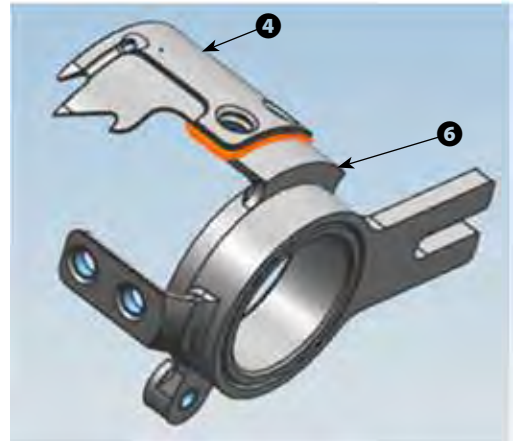
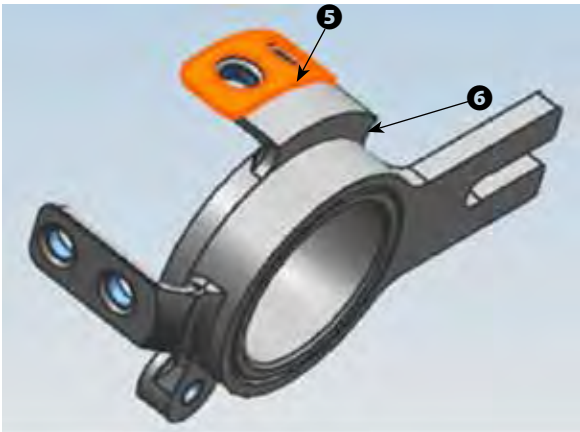
4) Remove the thread spreading knife ❹.



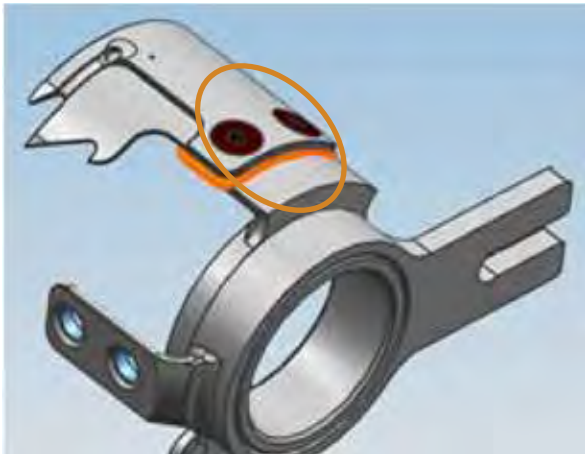
5) Bend the thread spreading knife spacer ❺ along the arc of the removed thread spreading knife ❹.



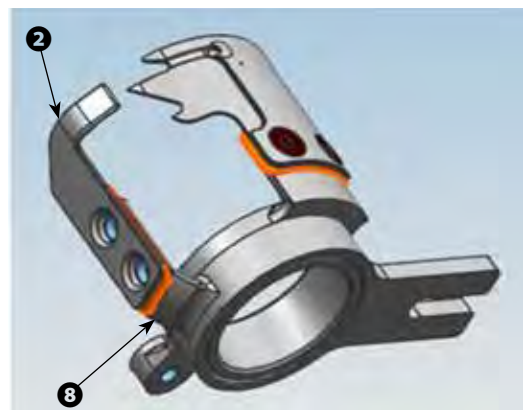
6) Set the thread spreading knife spacer **5** between the knife mount **6** and the thread spreading knife **4** .



Tighten the setscrews **3** ' (2 pcs.).



7) Set the thread trimmer knife spacer **7** between the knife base **8** and the thread trimmer knife **2** .

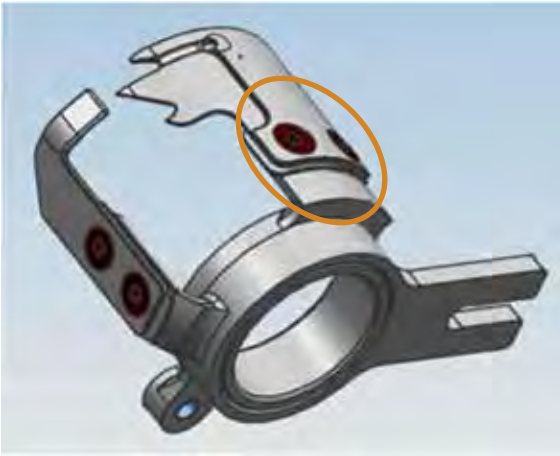


(Continued)

(Continued from the previous page)

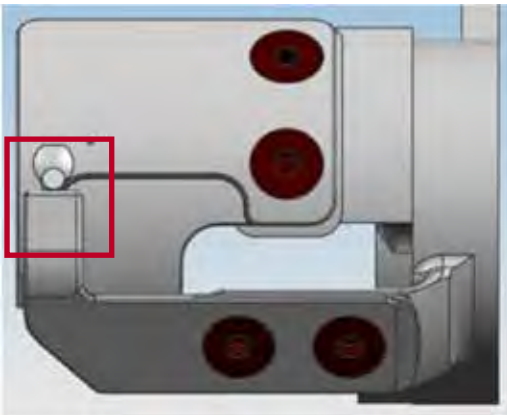


Tighten the setscrews ❶ ' (2 pcs.).



## [2] Assembly check

- 1) Check if the centerpiece of the thread spreading knife and the center of the thread trimmer knife are matched. If not, loosen the setscrew and adjust the position of the knife.



- 2) Make sure that the thread trimming can be performed normally.

① Set two threads in parallel to the centerpiece of the thread spreading knife, and move the thread trimmer knife to check the sharpness.

\* How to adjust the thread trimmer knife when the thread could not be trimmed

○ Both two threads cannot be cut

••• Move the thread trimmer knife horizontally towards the thread spreading knife.

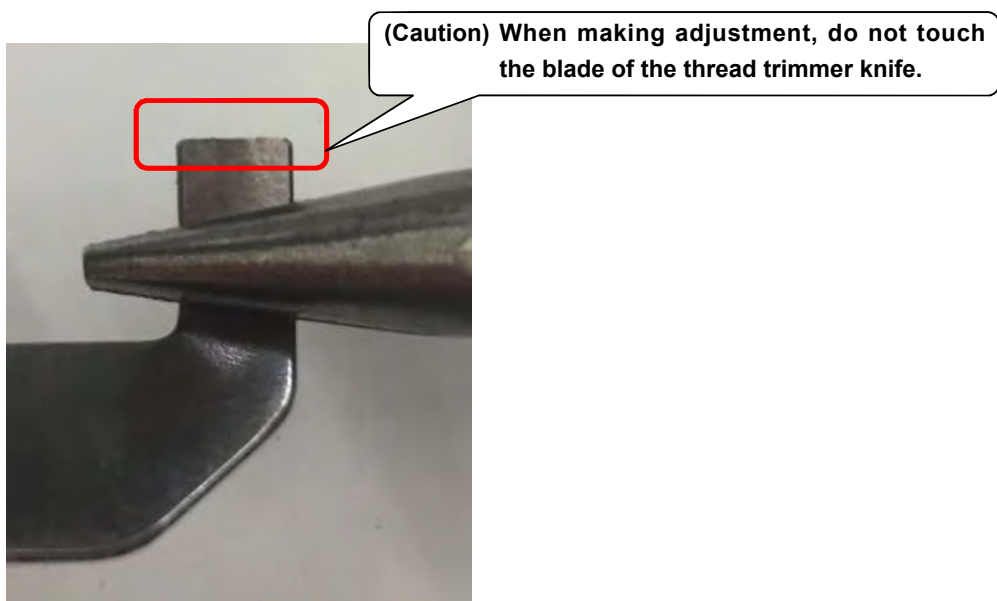
○ The right thread cannot be cut

••• Adjust the thread trimmer knife as twisting rightward.

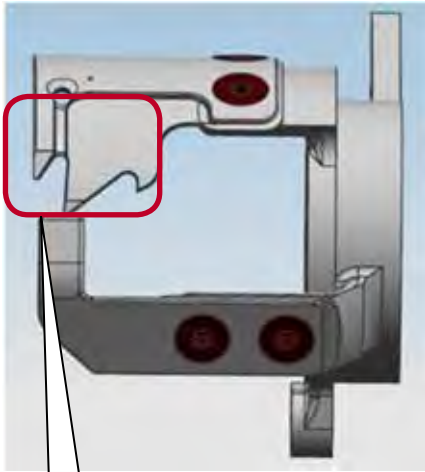
○ The left thread cannot be cut

••• Adjust the thread trimmer knife as twisting leftward.

**(Caution) When correcting the position, make sure to gradually adjust the position. If too much force is applied, distortion occurs and adjustment of the knife pressure will become difficult.**



② Check the pressure of two knives.



Make sure that the thread trimmer knife does not make strong contact against the thread spreading knife in front of the centerpiece of the thread spreading knife (read framed part).



(How to measure the knife pressure)  
Match the knives, and hook the a spring balance to the knife base and pull the threads while holding the knife units by hand so that they do not move in the axial direction.

**Adjusting value**

**S type: 9.8N or less**

**H type: targeting 9.8N, 14N or less**

③ Check the sharpness when the two threads are brought to each right and left side of the centerpiece of the thread spreading knife.

If not sharp enough, perform the procedure ① and ② .



Trim the thread in the state where the thread is brought to the left.

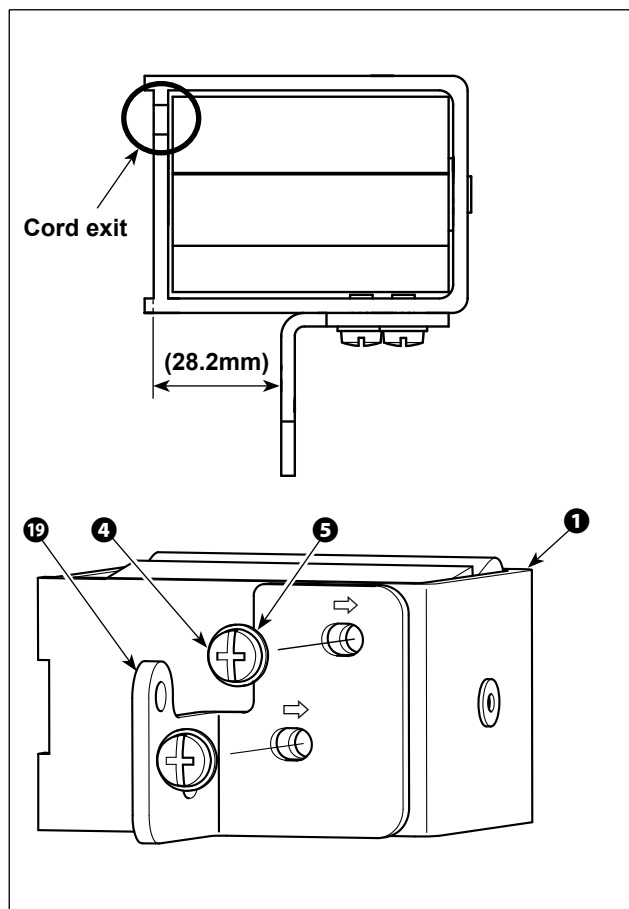


Trim the thread in the state where the thread is brought to the right.

## 2) Condensation sewing device

### [1] Subassembly

#### ① Subassembling the solenoid mounting plate B

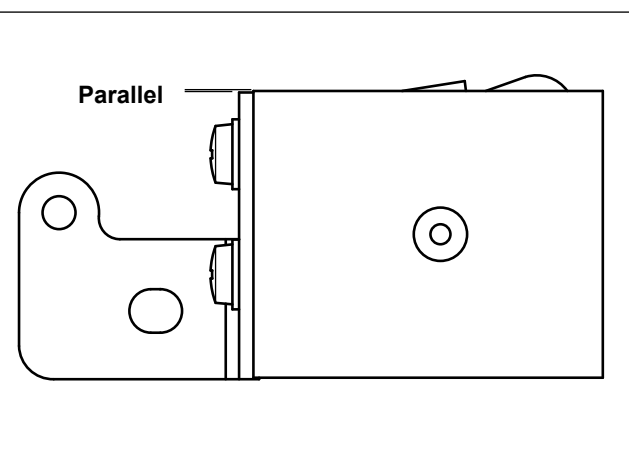


1) Secure solenoid mounting plate B **19** to solenoid **1** according to the orientation shown in the figure.

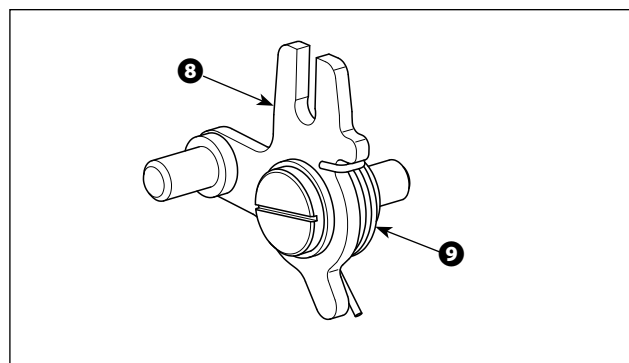
2) Shifting the solenoid mounting plate B **19** to the right side of slot, attach the mounting plate so that it is in parallel with solenoid **1**.

Parts to be used: M5 pan head screw, short **4** ; washer, small **5**

[Tightening torque: 1.9 - 2.9 N·m (20 – 30Kgf·cm)]



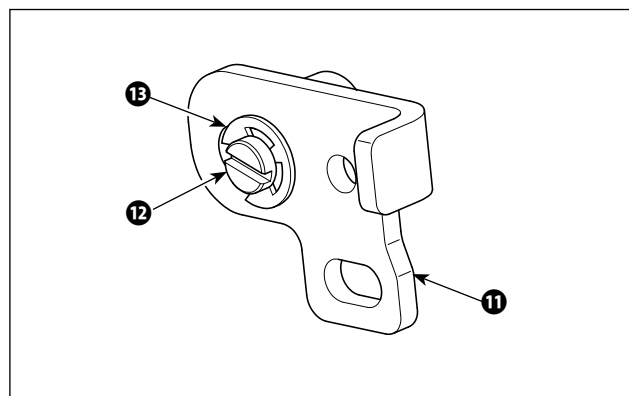
#### ② Subassembling the condensation arm return spring



1) Install condensation arm return spring **9** to condensation arm **8** according to the orientation shown in the figure.

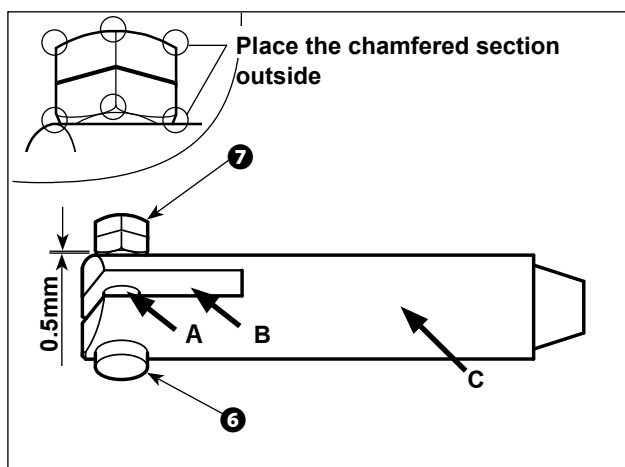
2) Apply JUKI Grease A to the boss section (the section that comes in contact with the spring) of condensation arm **8** and both ends of spring.

#### ③ Subassembling the condensation stopper eccentric pin



1) Pass condensation stopper shaft **12** through the hole in condensation stopper **11** according to the orientation shown in the figure. Then, attach E ring **13**.

#### ④ Subassembling the solenoid plunger pin



- 1) Apply JUKI Grease A to the shaft section A of plunger pin ⑥ .
- 2) Holding the plunger while turning its forked section to the left and its notch upward, pass plunger pin ⑥ from this side to the far side according to the orientation shown in the figure.
- 3) Tighten first nut ⑦ so that a clearance of 0.5 mm is provided between the plunger and nut ⑦ .
- 4) Securing first nut ⑦ with a spanner so that it will not move, tighten second nut ⑦ .

[Tightening torque: 4.4 - 5.5 N·m (45 – 55kgf·cm)]

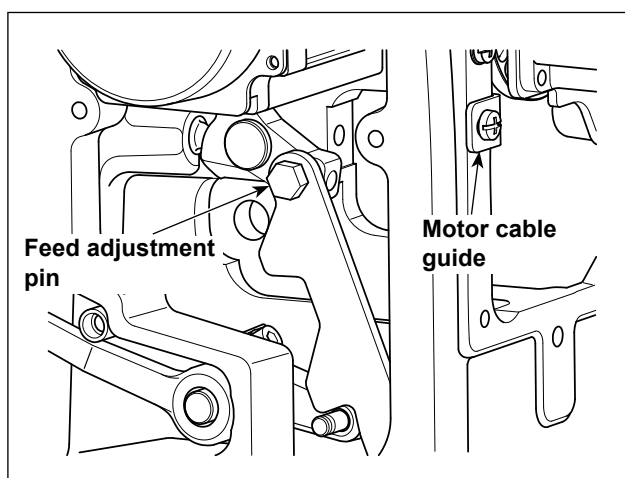
**(Caution) Assemble nuts ⑦ while turning their chamfered sections outside.**

- 5) Apply JUKI Grease A to the forked section B and periphery C of the plunger.

## [2] Installing parts to the machine head

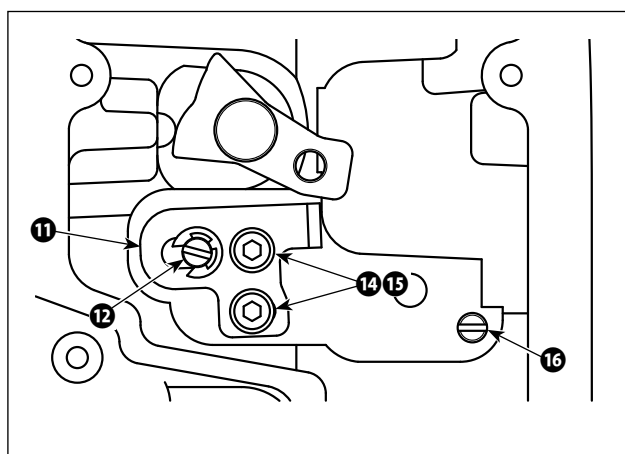
- ① Removing the AK cover, pulley and electrical box  
Remove the AK cover, pulley and electrical box.

- ② Removing the motor cable guide and feed adjustment pin



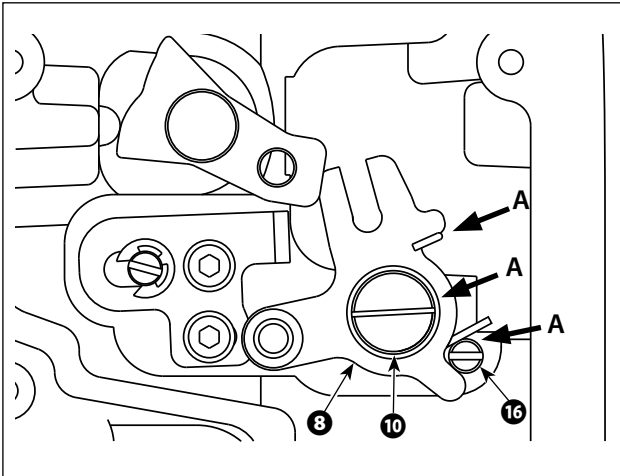
- 1) Remove the motor cable guide.
- 2) Loosen the feed adjustment pin setscrew. Remove the feed adjustment pin.  
At this time, remember the orientation of the feed adjustment pin. The forward / reverse feed adjustment will be easy when installing the pin in the aforementioned orientation.

- ③ Installing the condensation stopper and condensation arm stopper



- 1) Secure condensation arm stopper ⑯ to the position shown in the figure.
- 2) Insert condensation stopper shaft ⑫ of condensation stopper ⑪ into the hole in the arm, and temporarily secure condensation stopper ⑪ with M5 hexagon socket head cap screw ⑭ and washer, small ⑮ . (Adjustment is to be carried out later.)  
Screw to be used: M5 hexagon socket head cap screw, washer small

#### ④ Installing the condensation arm

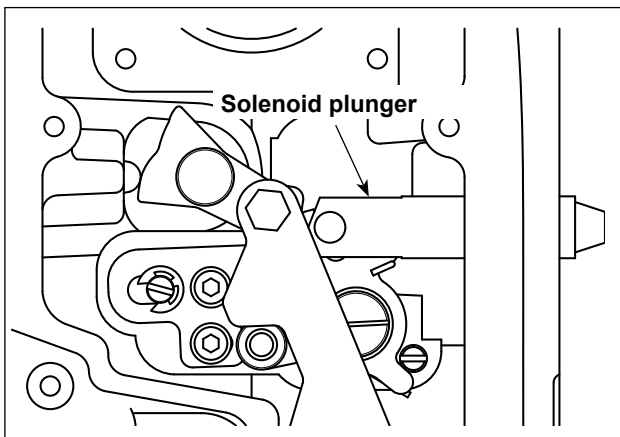


- 1) Apply JUKI Grease A to the sliding surfaces A of condensation arm ⑧ and hinge screw ⑩, and the contact surfaces of the spring and condensation arm ⑧.
- 2) Secure condensation arm ⑧ to which the condensation arm return spring is attached, with hinge screw ⑩.  
[Tightening torque: 7.8 - 8.8 N·m (80 - 90 kgf·cm)]
- 3) Put one end of the condensation return spring on condensation arm stopper ⑯.

#### ⑤ Installing the feed adjustment pin

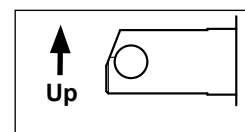
- 1) Reversing the removal procedure, install the feed adjustment pin.
- 2) Carry out adjustment of the forward / reverse feed alignment, etc. where appropriate.
- 3) Apply JUKI Grease A to the sliding surfaces.

#### ⑥ Setting up the condensation plunger



- 1) Apply JUKI Grease A to the sliding surfaces of condensation arm ⑧ and hinge screw ⑩, and the contact surfaces of the spring and condensation arm ⑧.
- 2) Place the solenoid plunger in the forked section of condensation arm ⑧.

**(Caution)** Turn the notched side of the solenoid plunger upward. If the solenoid plunger is attached in the wrong orientation, the condensation stitch device will not move.



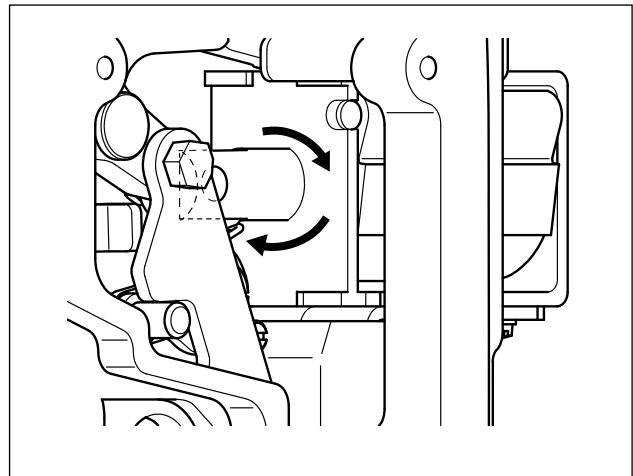
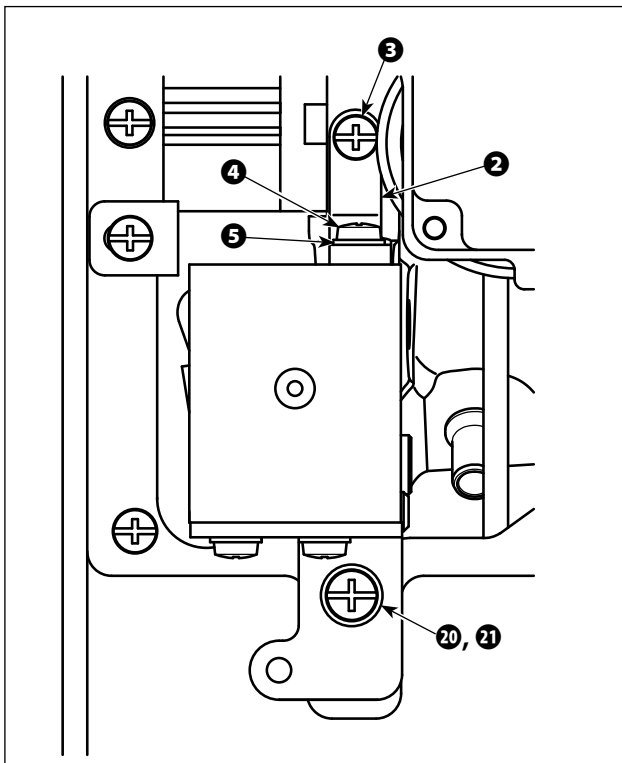
⑦ Assembling the condensation solenoid

- 1) Temporarily secure solenoid mounting plate ② to the arm with M5 pan head screw, short ③ .
- 2) Temporarily secure sub-assembled condensation solenoid to the arm with M6 pan head screw ②① and washer, large ②② . Then, temporarily secure the condensation solenoid to solenoid mounting plate ② which has been temporarily fixed in the aforementioned step 1) with M5 pan head screw, long ④ and washer ⑤ .
- 3) Fix screw ②① so that it is brought to the top end of the slot. Then, tighten screw ③ while pressing mounting plate ② against the condensation solenoid. Then, tighten screw ④ .

At this time, check first to make sure that the solenoid plunger is allowed to rotate in the axial direction, to smoothly rotate and to return to its initial position by the spring. Then, securely tighten the screws.

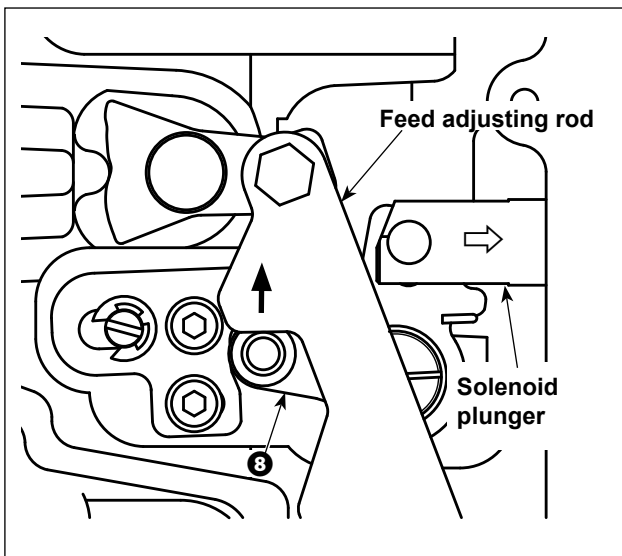
[Tightening torque: 1.9 - 2.9 N·m (20 - 30 kgf·cm)]

- 4) After tightening the screws, check to make sure that relevant parts normally operate and the screws are securely tightened.



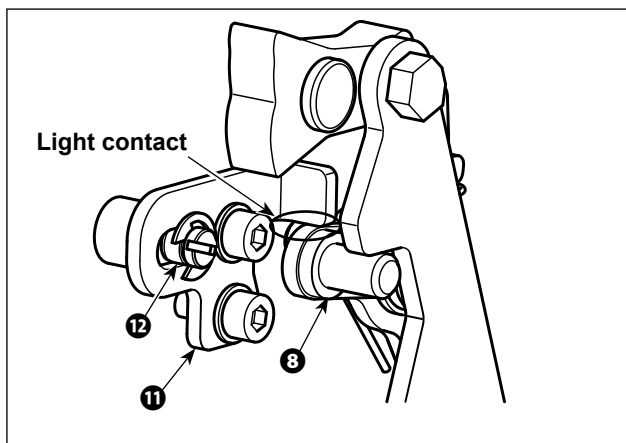
**(Caution)** If the solenoid plunger fails to rotate in the axial direction or fails to operate smoothly, the solenoid plunger has been assembled off-center. In this state, operation failure and abnormal wear can occur. Re-install the solenoid plunger correctly.

[3] Adjusting the condensation stopper



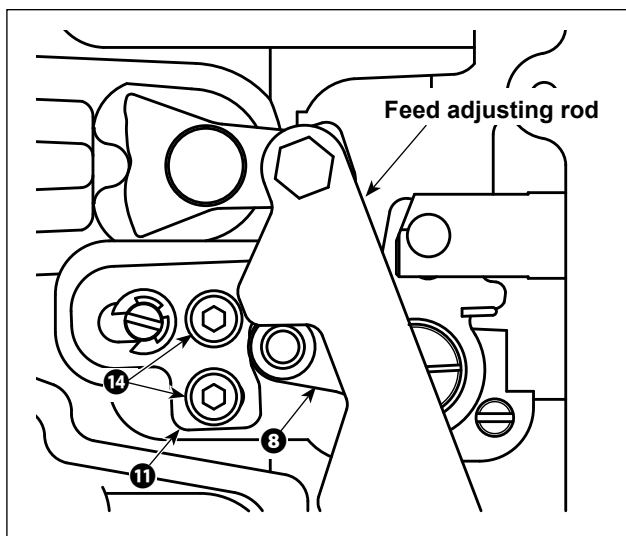
- 1) Set the stitch dial to "0.5". (For the H type model, set it to "0.75".)
- 2) Pull the plunger in the direction of the arrow (or move condensation arm ③ in the direction of the arrow) until condensation arm ③ comes in light contact with the feed adjusting rod.

**(Caution)** Take care not to allow the feed adjustment rod to move. If the feed adjustment rod moves, the condensation pitch cannot be adjusted as desired, resulting in thread trimming failure or in longer remaining length of thread after thread trimming.



- 3) Keeping the state as described in 2), turn condensation stopper shaft ⑫ until condensation stopper ⑪ comes in light contact with condensation arm ⑧ .

**(Caution)** Take care not to allow condensation arm ⑧ to move when condensation stopper ⑪ comes in light contact with condensation arm ⑧ . If condensation arm ⑧ moves, the condensation pitch cannot be adjusted as desired, resulting in thread trimming failure or in longer remaining length of thread after thread trimming.



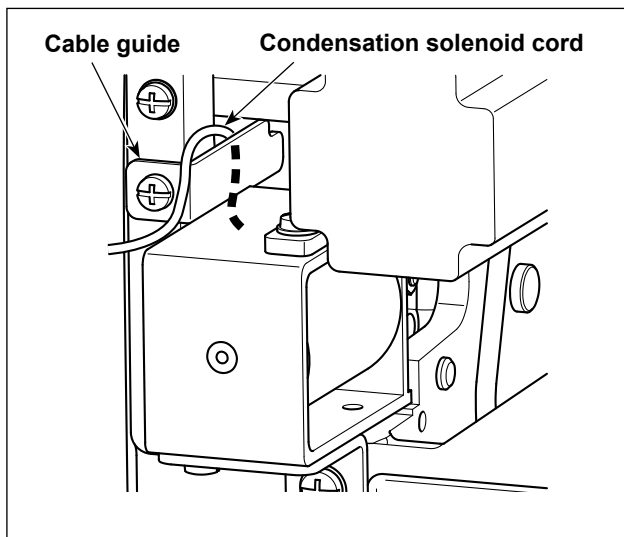
- 4) Keeping the state as described in 3), tighten setscrew ⑭ .

[Tightening torque: 4.8 - 5.8 N·m (50 - 60 kgf·cm)]

- 5) After tightening the setscrew, check to make sure

that condensation arm ⑧ comes in contact with the feed adjusting rod and condensation arm ⑧ without a gap. If condensation arm ⑧ comes in contact with the feed adjusting rod but there is a gap between the arm and condensation stopper ⑪ , the condensation pitch will be decreased. If, on the other hand, condensation arm ⑧ comes in contact with the condensation stopper ⑪ but there is a gap between the arm and feed adjusting rod, the condensation pitch will be increased. In either case, carry out the adjustment again.

#### ⑨ Attaching the motor cable guide

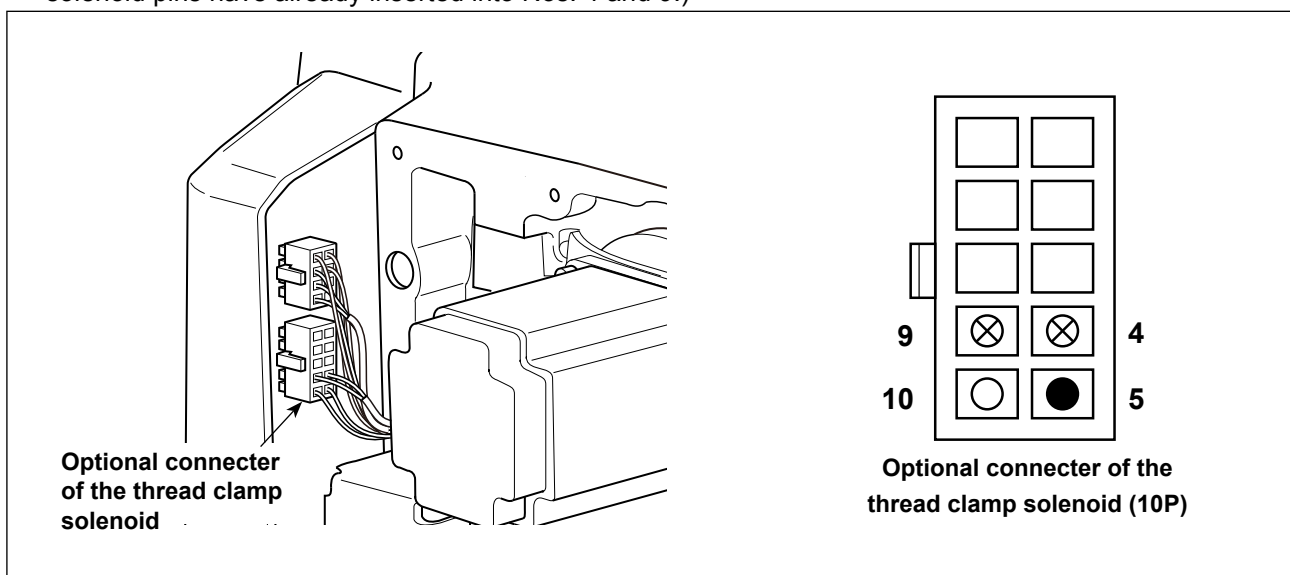


- 1) Secure the motor cable guide on the condensation solenoid cord. Then, pass the cord from below upward, on the far side of the motor cable guide. Then, pull the cord toward the near side.

#### ⑩ Connecting the cord

Insert the condensation solenoid pins into the optional connector of the thread clamp solenoid, as shown in the figure.

(Insert the black pin to No. 5 and the white pin into No. 10 of the 10-pin connector. The thread clamp solenoid pins have already inserted into Nos. 4 and 9.)



#### ⑪ Installing the AK cover, pulley and electrical box

Reversing the disassembly procedure, install the AK cover, pulley and electrical box.

### [4] Panel setting

#### ① Initial setting

P132 Operation starting duty of the condensation solenoid: 55

P133 Duty when the condensation solenoid operates: 10

Change the set values to the aforementioned value in order to operate the condensation solenoid without fail.

#### ② Setting the number of stitches

Set the number of condensation stitches at the end of sewing to 2.

P129 Number of condensation stitches at the end of sewing: 2

## 9. Dry hook



**WARNING :**

**Be sure to turn the power OFF before the following work in order to prevent personal injury due to unintentional starting of the sewing machine.**

[illegible]

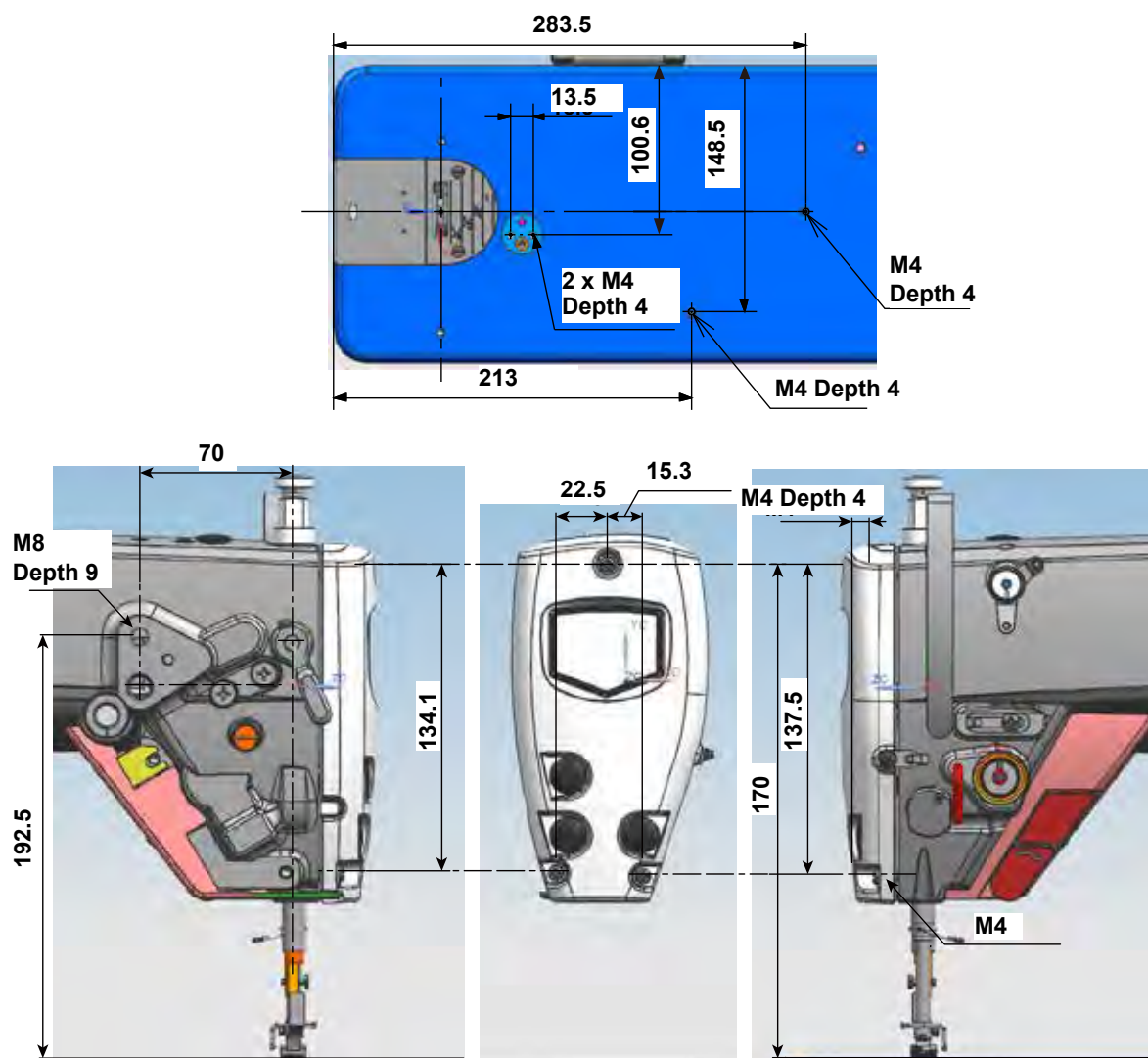
## 10. Screws for attachment and positions of external parts



### WARNING :

Be sure to turn the power OFF before the following work in order to prevent personal injury due to unintentional starting of the sewing machine.

### Standard adjustment



## 11. Troubles and corrective measures

### (1) Mechanical components

| Trouble                                                            | Cause (1)                                                                             | Cause (2)                                                                                                          | Check and corrective measures                                                                                                                                                                                                                                                                                                                                                                        |
|--------------------------------------------------------------------|---------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Skipping of one or more stitches occurs at the start of sewing. | 1-1) The needle thread passing through the needle is too short after thread trimming. | 1-A) Something is wrong with the needle thread route and the needle thread tension is too high at thread trimming. | Check needle thread routing, thread entangled on thread guide rod the direction, and position of thread stand or thread entangled on it.                                                                                                                                                                                                                                                             |
|                                                                    |                                                                                       | 1-B) The tension of the 1st thread tension disk is too high.                                                       | Turn the thread tension nut of the 1st thread tension disk counterclockwise to decrease the tension.                                                                                                                                                                                                                                                                                                 |
|                                                                    |                                                                                       | 1-C) The floating amount of the 2nd thread tension disk is insufficient at thread trimming.                        | Check whether the floating amount of the second thread tension disk reads between 1.0 and 1.5 mm when the thread trimming solenoid is fully inserted.<br>The floating amount is adjustable by moving the tension release wire on the underside of the bed.<br>Check whether the disk is horizontally loosened. If not, turn the thread tension spring 180 degrees or correct the spring inclination. |
|                                                                    |                                                                                       | 1-D) The timing of the tread trimming cam is too early.                                                            | Check and correct the cam timing in accordance with 3.-(9)-3).                                                                                                                                                                                                                                                                                                                                       |
|                                                                    |                                                                                       | 1-E) The needle thread is detached at thread trimming due to wrong position of the hook thread presser.            | If there is a clearance at the tip of the hook thread presser when the plunger is pushed by a finger to put the thread trimming solenoid into the suction state and the hook thread presser is pushed into until the tip of the presser reaches the bobbin, conduct readjustment with reference to 3.-(9) -4).                                                                                       |
|                                                                    |                                                                                       | 1-F) The counter knife is too close to the needle, or the knife tip is too sharp.                                  | Removing the throat plate, check and correct the position of the counter knife, or check for any scratch on the moving knife (Refer to 3.-(9) -4)).                                                                                                                                                                                                                                                  |
| To the next page                                                   |                                                                                       | To the next page                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                      |

| Trouble                                                        | Cause (1)                                                                                                        | Cause (2)                                                                                                                                                                                | Check and corrective measures                                                                                                                                                                                                                                                                                                                                                              |
|----------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>From the previous page</p> <p>↓</p> <p>To the next page</p> |                                                                                                                  | <p>From the previous page</p> <p>1-G) The knife thread guide, moving knife, or hook has a flaw.</p>                                                                                      | <p>Check whether the hole portion of the hook (especially the blade top) or knife thread guide has a flaw. If there is a flaw there, buff the flaw portion sufficiently. If the flaw portion is large, replace the part.</p>                                                                                                                                                               |
|                                                                |                                                                                                                  | <p>1-H) The lifting amount of the auto-lifter device is too large.</p>                                                                                                                   | <p>Excessive rise of the auto-lifter device causes the thread guide with presser bar guide to rise rapidly and the needle thread to be pulled by the thread take-up spring resulting in shortened needle thread. Readjust the rise amount of the AK device to approx. 8.5 mm. Alternatively, set the remaining amount of the needle thread relatively longer for use of the AK device.</p> |
|                                                                | <p>1-2) The R surface treatment of the edge of a thread trimming knife (other than a cutting portion) lacks.</p> | <p>2-A) The thread makes contact with each other and becomes so short at the time of trimming thread that it becomes difficult for the thread to make a knot at the start of sewing.</p> | <p>The edge of a thread trimming knife (other than a cutting portion) is buff-finished to the extent of R0.5 as an R surface treatment.</p>                                                                                                                                                                                                                                                |
|                                                                | <p>1-3) The low-intensity thread (such as a high-count filament type thread or cotton thread) is being used.</p> | <p>3-A) When the thread trimming speed is fast, the thread comes to be trimmed short at the time of trimming the thread.</p>                                                             | <p>The factory-configured thread trimming speed (No. 49 : 210sti/min, No. 50 : 180sti/min) is lowered.</p>                                                                                                                                                                                                                                                                                 |
|                                                                | <p>1-4) The bobbin thread is too short at sewing start.</p>                                                      | <p>4-A) Bobbin idling pulls the edge of the bobbin thread into the bobbin case.</p>                                                                                                      | <p>Increase the pressure of the bobbin presser.</p>                                                                                                                                                                                                                                                                                                                                        |
|                                                                |                                                                                                                  |                                                                                                                                                                                          | <p>Increase the bobbin thread tension.</p>                                                                                                                                                                                                                                                                                                                                                 |
|                                                                |                                                                                                                  | <p>4-B) The pressure of the bobbin presser is too high.</p>                                                                                                                              | <p>Reduce the pressure of the bobbin presser. However, be careful not to idle the bobbin.</p>                                                                                                                                                                                                                                                                                              |
|                                                                |                                                                                                                  | <p>4-C) A flaw on the hook causes the bobbin thread to be cut too short.</p>                                                                                                             | <p>Repair the flaw on the hook, or replace the hook.</p>                                                                                                                                                                                                                                                                                                                                   |

| Trouble | Cause (1) | Cause (2) | Check and corrective measures |
|---------|-----------|-----------|-------------------------------|
|---------|-----------|-----------|-------------------------------|

From the previous page

1-5) Knot tying between the needle and bobbin threads is not easy at sewing start.

5-A) The sewing speed at sewing start is too fast to knot the needle and bobbin threads together.

Conduct 1 or 2 stitches of soft-start (800 sti/min) at the sewing start.

5-B) If the thread trimming speed is fast, thread is cut short at thread trimming.

The factory-configured thread trimming speed (No. 49 : 210sti/min, No. 50 : 180sti/min) is lowered.

2. The needle thread slips off the needle at the sewing start.

2-1) The length of the needle thread passing through the needle varies after thread trimming.

1-A) Too high 1st thread tension due to delayed thread trimming timing causes the thread to be cut before engagement between the moving and counter knives. (midway cut)

Stop the motor, fully push the thread trimming solenoid by hand when the needle reaches the lowest point, trim the thread while turning the hand wheel slowly, and stop the hand wheel when the thread take-up lever comes to the upper dead point.  
If the length of the needle thread passing through the needle at this moment is 10 mm or more shorter than that of the pedal operation, hasten the timing of thread trimming or decrease the 1st thread tension because this is a midway cut.

2-2) The cause and measures are the same as those for the item, "1. Skipping of one or more stitches occurs at the start of sewing".

2-A) The blade of the counter knife has been sharpened excessively, and thread is trimmed only by the counter knife.

Re-sharpen the blade of the knife in accordance.

2-B) The knife thread guide, moving knife, or hook has a flaw.

Remove the scratches or burrs, or replace the defective component.

2-C) The needle is too thick.

Change the needle.

To the next page

| Trouble                                                                | Cause (1)                                                                          | Cause (2)                                                                                                                                      | Check and corrective measures                                                                                                                                                                                                                                                                                                                                           |
|------------------------------------------------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| From the previous page                                                 |                                                                                    |                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                         |
|                                                                        | 2-3) The needle thread slips off the needle immediately after thread trimming.     | 3-A) Too early cam timing or too late hook timing causes the moving knife to cut the needle thread to hold 3 threads before thread separation. | Slipping of the needle thread from the needle immediately after thread trimming results from cutting the needle thread passing through the needle due to defective thread spreading by the moving knife. In such a case, Thread chips of 40 mm level exist under the throat plate or on the underside cover. In this case, delay the timing of the thread trimming cam. |
|                                                                        | 2-4) Knot tying between the needle and bobbin threads is not easy at sewing start. | 4-A) The sewing speed at sewing start is too fast to knot the needle and bobbin threads together.                                              | Conduct 1 or 2 stitches of soft-start (800 sti/min) at the sewing start.                                                                                                                                                                                                                                                                                                |
| 3. The thread tension is inappropriate at sewing start.                | 3-1) The tension of the needle thread is too low at sewing start.                  | 1-A) Bobbin idling causes the bobbin thread tension at sewing start to decrease.                                                               | Adjust the hook thread presser in accordance with 3-(9)-7.                                                                                                                                                                                                                                                                                                              |
|                                                                        |                                                                                    | 1-B) The tensions of the bobbin thread and needle thread are too low.                                                                          | Increase the tensions of the bobbin thread and needle thread.                                                                                                                                                                                                                                                                                                           |
|                                                                        |                                                                                    | 1-C) The presser or throat plate is inappropriate.                                                                                             | Refer to the previous item, [An inappropriate needle, throat plate, or presser is used. Alternatively, the pressure of the presser is too low].                                                                                                                                                                                                                         |
| 4. The needle thread is untrimmed. (But the bobbin thread is trimmed.) | 4-1) Stitch skipping at the final stitch occurs.                                   | 1-A) The needle is inappropriately mounted.                                                                                                    | Mount a needle appropriately and make sure that the needle is not bent.                                                                                                                                                                                                                                                                                                 |
|                                                                        |                                                                                    | 1-B) The stroke of the thread take-up spring is too long.                                                                                      | Shorten the stroke of the thread take-up spring. (5 to 7 mm)                                                                                                                                                                                                                                                                                                            |
|                                                                        |                                                                                    | 1-C) The hook is inappropriately adjusted.                                                                                                     | Check for stitch skipping at low sewing speed, and re-adjust the hook timing (Hasten the timing of the hook.).                                                                                                                                                                                                                                                          |
| To the next page                                                       |                                                                                    |                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                         |

| Trouble | Cause (1) | Cause (2) | Check and corrective measures |
|---------|-----------|-----------|-------------------------------|
|---------|-----------|-----------|-------------------------------|

From the previous page

4-2) The blade portion of the knife is blunt.

2-A) The blade portions of the moving and counter knives are not perfectly aligned at thread trimming. (The mounting angle, position, and blade inclination of the counter knife are not matched with those of the moving knife.)

Remove the throat plate, and manually operate the thread trimmer to cut about three cotton thread #50. When all the three threads are cut evenly, no further corrective action is required. If not;

Sharpen the counter knife.

Correct the tilt of the blade tip of the counter knife.

Correct the position of the counter knife.

5. The bobbin thread is untrimmed. (But the needle thread is trimmed.)

5-1) The backward movement of the moving knife is insufficient.

1-A) The backward movement of the moving knife is inappropriately adjusted. (The position of the knife operation axis or the thread trimming cam in the right-left direction is inappropriately adjusted.)

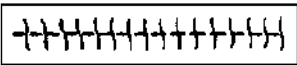
Measure the backward movement length of the moving knife.  
Adjust the position of the thread trimming cam in the right-left direction to set the backward movement length of the knife to within 2 to 2.5 mm (SH:2.5 to 3.0mm) if the measurement result is out of the range.

5-2) The position of the bobbin thread at thread trimming is unstable.

2-A) A hook other than the specified hook is used.

Check whether the current hook has a guide slit for the bobbin thread.  
If the hook has no such a slit, replace the hook with a hook for thread trimming.

## (2) Sewing performance

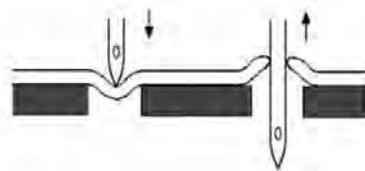
| Trouble                                                                                                                                                                                  | Cause (1)                                        | Cause (2)                                                      | Check and corrective measures                                                                                                                            |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Puckering<br>Wrinkles developed around stitches due to stitch shrinkage or uneven material feed.<br> | 1-1) The needle is too thick.                    | 1-A) Deformation of clothes by penetrating a needle into cloth | Use a thin needle as much as possible. Use a KN or SF needle (standard needle).                                                                          |
|                                                                                                                                                                                          | 1-2) Thread tension (top or bottom) is too high. | 2-A) The thread path is not smooth.                            | Finish the thread path appropriately.                                                                                                                    |
|                                                                                                                                                                                          |                                                  | 2-B) The timing of the hook is too late.                       | Hasten the timing of the hook without occurrence of stitch skipping to obtain smooth unthreading.                                                        |
|                                                                                                                                                                                          |                                                  | 2-C) The feed timing is too fast.                              | Delay the feed timing compared to the needle timing to reduce feeding.                                                                                   |
|                                                                                                                                                                                          |                                                  | 2-D) The stroke of the thread take-up lever is too long.       | Move the arm thread guide rightward to reduce the thread feeding with the thread take-up lever.                                                          |
|                                                                                                                                                                                          |                                                  | 2-E) The stroke of the thread take-up spring is too short.     | Increase the stroke.                                                                                                                                     |
|                                                                                                                                                                                          | 1-3) Pressing is inappropriate.                  | 3-A) The pressure is too high.                                 | Minimize the pressure. For some materials, sewing with the presser slightly floated with the adjustable screw of the minute presser lifter is effective. |
|                                                                                                                                                                                          |                                                  | 3-B) The finish of the backside of the presser is rough.       | Use a buff or the like to smooth the presser.                                                                                                            |
|                                                                                                                                                                                          |                                                  | 3-C) The material is difficult to feed.                        | Use a fluorocarbon resin presser or a special processed presser.                                                                                         |

To the next page

| Trouble | Cause (1) | Cause (2) | Check and corrective measures |
|---------|-----------|-----------|-------------------------------|
|---------|-----------|-----------|-------------------------------|

From the previous page

1-4) The material is inappropriately stretched.



4-A) The needle hole of the throat plate is too large.

Replace the current gauge with a new one having a smaller diameter hole.

4-B) The thread relief on the backside of the presser is too large.

Use a presser with a smaller thread relief on the backside or without thread relief.  
Part No. D1524555DBA Small clearance groove  
Part No. B1524012TBO No clearance groove

4-C) The parallel level of the presser is inappropriate.

Replace the presser, or loosen the presser bar holding screw and correct the needle entry and presser bend if there is no needle entry.

4-D) The needle tip is blunt.

Replace the needle.

1-5) Feeding is inappropriate.

5-A) Too high feed dog causes jumping at high speeds.

Lower the height of the feed dog (MS : 0.8 mm, SH : 1.2 mm) or increase the pressure to prevent the material from jumping.

5-B) The tip of the feed dog is worn.

Sharpen the top edges.

5-C) The pitch of the feed dog is too large.

Replace the current feed dog with a new one having a smaller pitch.

5-D) The inclination of the feed dog is inappropriate.

Adjust the tilt so that the front end of the feed dog is higher than the rear end.

5-E) The parallel level of the feed dog is inappropriate.

Replace the current feed tooth with new one.

5-F) The sewing speed is too high.

Reduce the sewing speed.

5-G) Others

Use a small gauge for a gap between the throat plate groove and feed dog in the moving direction without interference with the movement of the feed dog when a feeding pitch is small.

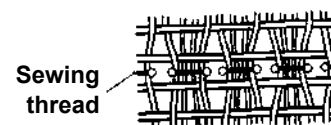
To the next page

| Trouble | Cause (1) | Cause (2) | Check and corrective measures |
|---------|-----------|-----------|-------------------------------|
|---------|-----------|-----------|-------------------------------|

From the previous page

1-6) Occurrence of puckering by tightening a thread

6-A) The course-woven and close-woven stitches come to occur because weaving yarns of clothes are gathered with stitches



The needle thread is made easy to adjust slightly to the low tension by using a weak spring for a thread take-up spring and a thread tension spring.

- Thread take-up spring  
Part No. B3128012000  $\phi$ 0.6mm (Standard)  
Part No. D3128555D00  $\phi$ 0.5mm  
(For light-weight materials)

Part No. B3128027000  $\phi$ 0.4mm (For embroideries)

- Thread tension springs  
Part No. B3129012A00  $\phi$ 1.0mm (Standard)  
Part No. D3129555D00  $\phi$ 0.9mm  
(For light-weight materials)

(1)Part No. B3121352000  $\phi$ 0.8mm  
(For ultra light-weight materials)

(2)Part No. B2017372000  $\phi$ 0.6mm (Weaker springs)

Tension indicated for the lower limit of adjustment

(1) Some 20 grams for Tetoron thread (No. 80)

(2) Some 12 grams for Tetoron thread (No. 80)

Use a lightweight bobbin.  
Part No. 22964001 (Anodized aluminum)

Use the bobbin case that is easy to adjust even when the tension is low.

(1) Bobbin case for sewing ultra light-weight materials  
→ Part No. 11105459

(The thickness of the bobbin tension adjusting spring (popularly called: a brake shoe pin) is 0.05 mm thinner than the standard one.)

(2) Bobbin case without an idling prevention spring  
→ Part No. B18370120A0

It can be adjusted to the low tension because of no idling prevention spring.

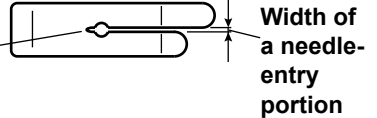
\* It is unsuitable for high-speed sewing because the idle running of a bobbin is easy to occur.

To the next page

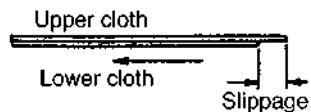
| Trouble | Cause (1) | Cause (2) | Check and corrective measures |
|---------|-----------|-----------|-------------------------------|
|---------|-----------|-----------|-------------------------------|

From the previous page

The influence of thread tightness by a thread take-up and a feed dog is reduced by using small presser with a clearance groove.  
Presser asm.  
Part No. D1524555DBA (Small clearance groove)  
Part No. B1524012TBO (No clearance groove)



2. Uneven material feed  
The upper and lower cloths are not evenly fed.



2-1) Feeding is inappropriate.

1-A) The feed dog is too high.

Lower the height of the feed dog (MS : 0.8 mm, SH : 1.2 mm) or increase the pressure to prevent the material from jumping.

1-B) The feed trace is inappropriate.

Adjust the timing of the vertical feed cam with reference to "3.-(3) Operating timing of the feed".

1-C) The top edges of the feed dog teeth are worn.

Sharpen the top edges.

1-D) The feed dog pitch is too large.

Use one with a smaller pitch.

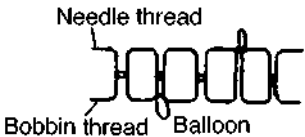
1-E) The tilt of the feed dog is not correct.

Set the feed dog with its front down.

1-F) The feed timing is too late.

Adjust the feed timing to the standard timing.

To the next page

| Trouble                                                                                                                                                                                                                                                                       | Cause (1)                                                   | Cause (2)                                                                                                           | Check and corrective measures                                                                                                                                                                                                                                                                                                                                             |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>3. "Balloon" stitches (loose stitches and looping)<br/>Thread knots are formed on either side of material as a random thread loop.</p>  <p>Needle thread<br/>Bobbin thread    Balloon</p> | From the previous page                                      |                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                           |
|                                                                                                                                                                                                                                                                               | 2-2) Pressing is inappropriate.                             | 2-A) The pressure is too high.                                                                                      | Minimize the pressure. For some materials, sewing with the presser slightly floated with the adjustable screw of the minute presser lifter is effective.                                                                                                                                                                                                                  |
|                                                                                                                                                                                                                                                                               |                                                             | 2-B) The finish of the backside of the presser is rough.                                                            | Buff the sole.                                                                                                                                                                                                                                                                                                                                                            |
|                                                                                                                                                                                                                                                                               |                                                             | 2-C) The presser is made from Non-smooth material.                                                                  | Use a fluorocarbon resin presser or a special processed presser.                                                                                                                                                                                                                                                                                                          |
|                                                                                                                                                                                                                                                                               | 2-3) The sewing speed is too high.                          |                                                                                                                     | Reduce the sewing speed.                                                                                                                                                                                                                                                                                                                                                  |
|                                                                                                                                                                                                                                                                               | 3-1) The thread tension is too low.                         |                                                                                                                     | Increase the 2nd thread tension.                                                                                                                                                                                                                                                                                                                                          |
|                                                                                                                                                                                                                                                                               | 3-2) The thread take-up spring is inappropriately adjusted. | 2-A) The stroke of the thread take-up spring is too short.                                                          | The thread take-up spring with too short stroke cannot sufficiently take up the loosened thread resulting in a higher possibility of balloon stitches or thread breakage. The thread take-up spring with too low tension cannot function well at high speeds or sufficiently take up the thread resulting in a higher possibility of balloon stitches or thread breakage. |
|                                                                                                                                                                                                                                                                               |                                                             | 2-B) The tension is too low.                                                                                        | The thread take-up spring with too low tension cannot function well at high speeds or sufficiently take up the thread resulting in a higher possibility of balloon stitches or thread breakage.                                                                                                                                                                           |
|                                                                                                                                                                                                                                                                               |                                                             | 2-C) The shape of the thread take-up spring is inappropriate.                                                       | Thread slack may cause catching thread when the tip of the thread take-up spring is open. If the open level is too wide, use your finger to close the tip.                                                                                                                                                                                                                |
|                                                                                                                                                                                                                                                                               |                                                             | 2-D) The thread take-up spring tension is insufficient.<br>The following capability is insufficient at high speeds. | When #60 or thicker thread is used, the thread take-up spring used in the A type is too weak to exert its effect due to insufficient tension of the spring at the end of the operation. In such a case, use a standard type thread take-up spring (or thread tension).                                                                                                    |
|                                                                                                                                                                                                                                                                               | To the next page                                            |                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                           |

| Trouble | Cause (1) | Cause (2) | Check and corrective measures |
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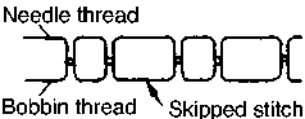
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| 3-3) The stroke of the thread take-up lever is too long. |                                                                                                         |  | Move the arm thread guide rightward to reduce the thread feeding with the thread take-up lever. |
| 3-4) The stroke of the thread take-up lever is too long. |                                                                                                         |  | Move the arm thread guide rightward to reduce the thread feeding with the thread take-up lever. |
| 3-5) The matters related to the hook are inappropriate.  | 5-A) The timing of the hook is too early.                                                               |  | Set the timing of the hook to the standard or slightly late level for cotton or spun thread.    |
|                                                          | 5-B) The timing of the hook is too late.                                                                |  | Set the timing of the hook to the slightly early level for filament thread.                     |
|                                                          | 5-C) The clearance between the hook and inner hook presser is too small.                                |  | Increase the clearance to smooth the thread passing.                                            |
|                                                          | 5-D) Hook oil is insufficient.                                                                          |  | Adjust the oil volume to the appropriate level.                                                 |
|                                                          | 5-E) The hook is defective. (Thread catch)                                                              |  | Replace the hook.                                                                               |
| 3-6) The thread path is defective.                       | 6-A) The thread path is not smooth.                                                                     |  | Finish the thread path appropriately.                                                           |
|                                                          | 6-B) The thread path has a flaw.                                                                        |  | Finish the thread path appropriately.                                                           |
|                                                          | 6-C) The thread path has an obstacle.                                                                   |  | Finish the thread path appropriately to correct threading.                                      |
| 3-7) The bobbin or bobbin case is defective.             | 7-A) Inappropriate engagement between the bobbin and bobbin case causes the bobbin thread to be caught. |  | Replace the bobbin or bobbin case.                                                              |
|                                                          | 7-B) Thread has not properly been wound around the bobbin.                                              |  | The winding tension was too high or low.                                                        |
|                                                          | 7-C) The tension adjusting spring of the bobbin case is defective.                                      |  | Replace the bobbin case.                                                                        |

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| Trouble | Cause (1)                                               | Cause (2)                                                                                        | Check and corrective measures                                                                                                                                                                  |
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|         | From the previous page                                  | From the previous page                                                                           |                                                                                                                                                                                                |
|         |                                                         | 7-D) The bobbin thread idles in the bobbin case.                                                 | Adjust the tension of the idling prevention spring with reference to "3.-(4)."                                                                                                                 |
|         |                                                         | 7-E) The bobbin has a flaw.                                                                      | Remove a burr at the flaw portion, or replace the bobbin.                                                                                                                                      |
|         | 3-8) Feeding is inappropriate.                          | 8-A) The timing of feeding is inappropriate, or the height of the feed dog is too low.           | Set the feed timing to a level slightly later than standard (for cotton or spun thread). Set the feed timing to a level earlier than standard (for filament thread). Lift the feed dog height. |
|         | 3-9) Pressing is inappropriate.                         | 9-A) The presser is floating.                                                                    | Adjust the clearance between the presser bar holder and lifting plate. (The clearance shall be within 0.8 to 1.2mm when the presser is closely contacted with the throat plate.                |
|         |                                                         | 9-B) The presser foot sole has little or no relief (for thicker thread or larger stitch length). | Use a foot with a large thread relief on the backside.                                                                                                                                         |
|         | 3-10) The thread tension device is defective.           | 10-A) The thread tension disk is floating.                                                       | Adjust the timing of the thread tension disk floating with reference to "3.-(9)-6."                                                                                                            |
|         | 3-11) The needle hole of the throat plate is too small. |                                                                                                  | Use a throat plate with a larger needle hole.                                                                                                                                                  |
|         | 3-12) The needle is too thin for the thread to be used. |                                                                                                  | Change the needle or thread to be used.                                                                                                                                                        |
|         | 3-13) The needle is defective.                          | 13-A) A burr exists on the tip of the needle.                                                    | Replace the needle.                                                                                                                                                                            |

| Trouble                                                                                                                                                      | Cause (1)                                               | Cause (2)                                                                                        | Check and corrective measures                                                                                                                                                                                                         |
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| <p>4. Stitch skipping<br/>The machine fails to form a complete stitch.</p>  | 4-1) The needle is defective.                           | 1-A) The needle is bent.                                                                         | Replace the needle.                                                                                                                                                                                                                   |
|                                                                                                                                                              |                                                         | 1-B) The needle mounting direction is inappropriate. The needle is not mounted fully to the end. | Mount the needle appropriately. Replace the needle clamp screw. Defective sewing is likely to occur when the needle recess portion faces frontward.                                                                                   |
|                                                                                                                                                              |                                                         | 1-C) The needle tip is blunt.                                                                    | Replace the needle.                                                                                                                                                                                                                   |
|                                                                                                                                                              |                                                         | 1-D) The needle is too thin or thick for the thread to be used.                                  | Replace the needle.                                                                                                                                                                                                                   |
|                                                                                                                                                              |                                                         | 1-E) The feeding force is too weak.                                                              | Lift the feed dog height.                                                                                                                                                                                                             |
|                                                                                                                                                              | 4-2) The matters related to the hook are inappropriate. | 2-A) The blade top of the hook is blunt or worn.                                                 | Sharpen the blade top of the hook or replace the hook.                                                                                                                                                                                |
|                                                                                                                                                              |                                                         | 2-B) The timing of the hook is inappropriate.                                                    | Correct the timing. (The proper timing depends on the type of material and thread. In general, the timing should be set earlier for synthetic thread or heavy-weight material, and it should be set later for light-weight material.) |
|                                                                                                                                                              |                                                         | 2-C) The height of the needle bar is inappropriate.                                              | Properly adjust it with respect to the hook point.                                                                                                                                                                                    |
|                                                                                                                                                              |                                                         | 2-D) The clearance between the hook point and needle is wrong.                                   | Minimize the clearance.                                                                                                                                                                                                               |
|                                                                                                                                                              |                                                         | 2-E) The loop shape is unstable. (Mesh type materials)                                           | Wind the needle thread or use the T-type thread guide.(B1418227T00).                                                                                                                                                                  |
|                                                                                                                                                              |                                                         | 2-F) A needle holder does not exist.                                                             | Replace the current hook with a hook with a needle holder equipped. 11141355 for MS, 22890404 for SH                                                                                                                                  |
|                                                                                                                                                              | 4-3) The tension of the needle thread is too high.      |                                                                                                  | Reduce the tension of the needle thread. Use silicon.                                                                                                                                                                                 |

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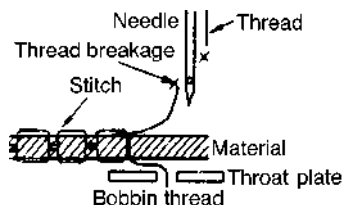
| Trouble | Cause (1) | Cause (2) | Check and corrective measures |
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|-------------------------------------------------------------|----------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------|
| 4-4) The sewing speed is too high.                          |                                                                      |  | Reduce the sewing speed.                                                                |
| 4-5) The feed timing is inappropriate. (Needle bent)        | 5-A) The needle is bent by the thick portion.                        |  | Hasten the feed timing.                                                                 |
| 4-6) The thread take-up spring is inappropriately adjusted. | 6-A) The stroke of the thread take-up spring is too long.            |  | Shorten the stroke of the thread take-up spring.                                        |
|                                                             | 6-B) The tension of the thread take-up spring is too high.           |  | Reduce the tension of the thread take-up spring.                                        |
| 4-7) The material is inappropriately stretched.             | 7-A) The presser is floating.                                        |  | Adjust the clearance between the presser bar holder and lifting plate.                  |
|                                                             | 7-B) The needle hole of the throat plate is too large.               |  | Use one with a smaller needle hole.                                                     |
|                                                             | 7-C) The thread relief on the back side of the presser is too large. |  | Use one with a smaller relief or with no relief.                                        |
|                                                             | 7-D) The parallel level of the presser is inappropriate.             |  | Replace the presser, or loosen the presser bar holding screw and correct the foot bend. |

#### 5. Needle thread breakage

The needle thread splits finely or breaks during sewing.

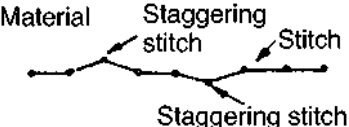


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| 5-1) The thread path (including the throat plate and foot) is defective. | 1-A) The thread path is not smooth.                           |  | Finish the thread path appropriately.                                                                                               |
|                                                                          | 1-B) The thread path has a flaw.                              |  | Finish the thread path appropriately.                                                                                               |
|                                                                          | 1-C) The thread path has an obstacle.                         |  | Check threading again and conduct correction if necessary.                                                                          |
| 5-2) The tension of the needle thread is inappropriate.                  | 2-A) The tension of the needle thread is too high or too low. |  | Adjust the tension of the needle thread to the appropriate level.                                                                   |
|                                                                          | 2-B) The 1st thread tension is too low.                       |  | Adjust the tension of the needle thread to eliminate random movement of the thread between the 1st and 2nd thread tension portions. |

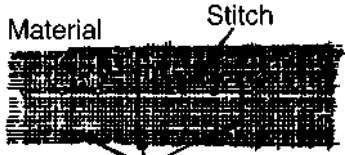
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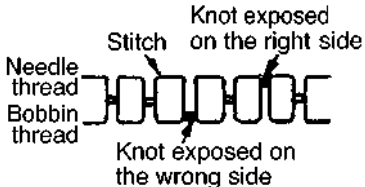
| Trouble                | Cause (1)                                                   | Cause (2)                                                                | Check and corrective measures                                                                                                       |
|------------------------|-------------------------------------------------------------|--------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| From the previous page |                                                             |                                                                          |                                                                                                                                     |
|                        | 5-3) The thread take-up spring is inappropriately adjusted. | 3-A) The stroke of the thread take-up spring is too long or too small.   | Adjust the stroke of the thread take-up spring.                                                                                     |
|                        |                                                             | 3-B) The tension of the thread take-up spring is too high or too low.    | Adjust the tension of the thread take-up spring.                                                                                    |
|                        |                                                             | 3-C) The tension of the thread take-up spring is too high or too low.    | For the A-type thread tension, replace the current thread take-up spring with a standard type spring. (for a #60 or thicker thread) |
|                        | 5-4) The needle is defective.                               | 4-A) The needle is bent.                                                 | Replace the needle.                                                                                                                 |
|                        |                                                             | 4-B) The needle has a flaw.                                              | Replace the needle.                                                                                                                 |
|                        |                                                             | 4-C) The needle tip is blunt.                                            | Replace the needle.                                                                                                                 |
|                        |                                                             | 4-D) The needle mounting direction is inappropriate.                     | Mount the needle appropriately. Defective sewing is likely to occur when the needle recess portion faces frontward.                 |
|                        |                                                             | 4-E) The needle is too thin or thick for the thread to be used.          | Replace the needle.                                                                                                                 |
|                        |                                                             | 4-F) The needle tip is too sharp.                                        | Use a ballpoint needle.                                                                                                             |
|                        | 5-5) The matters related to the hook are inappropriate.     | 5-A) The thread path of the hook has a flaw.                             | Replace the needle.                                                                                                                 |
|                        |                                                             | 5-B) The blade top of the hook is blunt or worn.                         | Sharpen the blade top of the hook or replace the needle.                                                                            |
|                        |                                                             | 5-C) The clearance between the hook and inner hook presser is too small. | Increase the clearance to smooth the thread passing.                                                                                |
|                        |                                                             | 5-D) Hook oil is insufficient.                                           | Adjust the hook oil volume to the appropriate level.                                                                                |
|                        |                                                             | 5-E) The thread path of the hook has a flaw.                             | Replace the needle.                                                                                                                 |

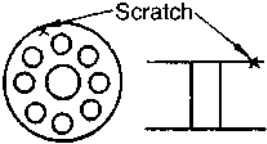
| Trouble                                        | Cause (1)                                                   | Cause (2)                                                                                                                                                                   | Check and corrective measures                                                                                                                                                                                                                                                                                                                                                     |
|------------------------------------------------|-------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6. Thread breakage at back or back-tuck sewing | 6-1) The needle has improperly been attached.               | 1-A) The orientation of the needle is wrong.<br>Long groove side  Indented side          | Attach the needle so that the long groove of the needle faces exactly to the left or slightly toward the operator as illustrated.<br><br>About 10°                                                                                                                                             |
|                                                |                                                             | 1-B) The thread take-up spring is inappropriately adjusted.                                                                                                                 | Adjust the thread take-up spring so that the thread is not fed from the thread tension disk before the thread take-up spring moves to the end. (The more effective this adjustment becomes, the lower the spring tension is set or the longer the stroke of the spring is set.)<br><br>Wind the thread around the needle or use the T-type needle bar thread guide (B1418227T00). |
|                                                | 6-2) The timing of the hook is too late.                    | 2-A) Late hook timing excessively enlarges and deforms the needle thread loop, and accordingly, the thread is caught twice with the blade top resulting in thread breakage. | Conduct hook adjustment 0.2 to 0.5 mm earlier than the lower marker line of the needle bar.<br><br>Wind the thread around the needle.                                                                                                                                                                                                                                             |
|                                                |                                                             |                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                   |
|                                                | 6-3) The thread take-up spring is inappropriately adjusted. | 3-A) The stroke of the thread take-up spring is too long or too small.                                                                                                      | Adjust the stroke of the thread take-up spring.                                                                                                                                                                                                                                                                                                                                   |
|                                                |                                                             | 3-B) The tension of the thread take-up spring is too high or too low.                                                                                                       | Adjust the tension of the thread take-up spring.                                                                                                                                                                                                                                                                                                                                  |
|                                                |                                                             | 3-C) Spring selection for the thread to be used is inappropriate.                                                                                                           | For the A-type thread tension, replace the current thread take-up spring with a standard type spring. (for a #60 or thicker thread)                                                                                                                                                                                                                                               |

| Trouble                                                                                                                                                               | Cause (1)                                                   | Cause (2)                                                                                                                                                          | Check and corrective measures                                                                                                                                                                                                         |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7. Thread breakage at needle entry or idle stitching.                                                                                                                 | 7-1) The needle has improperly been installed.              | 1-A) The orientation of the needle is wrong.<br>Long groove side  Indented side | Attach the needle so that the long groove of the needle faces exactly to the left or slightly away from the operator as illustrated.<br>About 10°  |
|                                                                                                                                                                       | 7-2) The knife thread guide has improperly been positioned. |                                                                                                                                                                    | Accurately position it so that needle enters the center of the opening.                                                                                                                                                               |
|                                                                                                                                                                       | 7-3) The needle bar is too low.                             |                                                                                                                                                                    | Raise the needle bar.                                                                                                                                                                                                                 |
|                                                                                                                                                                       |                                                             |                                                                                                                                                                    | Wrap the thread around the needle.                                                                                                                                                                                                    |
| 8. Staggering stitches<br>Some stitches stagger, whereas they should be aligned.<br> | 8-1) The tension of the needle thread is too high.          |                                                                                                                                                                    | Reduce the tension of the needle thread.                                                                                                                                                                                              |
|                                                                                                                                                                       | 8-2) The needle is defective.                               | 2-A) The needle is bent.                                                                                                                                           | Replace the needle.                                                                                                                                                                                                                   |
|                                                                                                                                                                       |                                                             | 2-B) The needle tip is blunt.                                                                                                                                      | Replace the needle.                                                                                                                                                                                                                   |
|                                                                                                                                                                       |                                                             | 2-C) Needle is too thin.                                                                                                                                           | Use a thicker needle. For a KN needle (single needle), use a double needle.                                                                                                                                                           |
|                                                                                                                                                                       |                                                             | 2-D) The needle is too long.                                                                                                                                       | Use a shorter needle or a needle with longer shank (DA x 1)                                                                                                                                                                           |
|                                                                                                                                                                       | 8-3) The sewing speed is too high.                          |                                                                                                                                                                    | Reduce the sewing speed.                                                                                                                                                                                                              |
|                                                                                                                                                                       | 8-4) Feeding is inappropriate.                              | 4-A) The parallel level of the feed dog is inappropriate.                                                                                                          | Replace the current feed dog with new one.                                                                                                                                                                                            |
|                                                                                                                                                                       |                                                             | 4-B) The feed dog is aslant mounted.                                                                                                                               | Mount the feed dog appropriately.                                                                                                                                                                                                     |
|                                                                                                                                                                       |                                                             | 4-C) The feeder bar has a backlash in the right-left direction.                                                                                                    | Eliminate the backlash in the state of slightly pressing the top, bottom, and horizontal feeder bar pins.                                                                                                                             |
|                                                                                                                                                                       |                                                             |                                                                                                                                                                    |                                                                                                                                                                                                                                       |
|                                                                                                                                                                       |                                                             |                                                                                                                                                                    |                                                                                                                                                                                                                                       |

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| Trouble                                                                                                                                                                   | Cause (1)                               | Cause (2)                                                                                                                                                                         | Check and corrective measures                                                                                                                                                        |
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| From the previous page                                                                                                                                                    |                                         |                                                                                                                                                                                   |                                                                                                                                                                                      |
| 9. Material fiber breaks.<br>Material fibers are broken by the needle during sewing.<br> | 8-5) Pressing is inappropriate.         | 5-A) The presser is floating.<br>5-B) The parallel level of the presser is inappropriate.<br>5-C) The pressure is too low.                                                        | Readjust the position of the presser bar holder.<br>Replace the presser, or loosen the presser bar holding screw and correct the foot bend.<br>Increase the pressure of the presser. |
|                                                                                                                                                                           | 8-6) Threading is inappropriate.        | 6-A) Threading of the needle thread is improper.<br>6-B) The needle bar thread guide is defective.                                                                                | Correct threading.<br>Try using B1418227T00 or B1418552A00.                                                                                                                          |
|                                                                                                                                                                           | 9-1) The needle is defective.           | 1-A) The needle heat is too high.<br>1-B) The needle is too thick.<br>1-C) The needle tip is blunt.<br>1-D) The shape of the needle tip is inappropriate. (Different needle type) | Use silicon.<br>Use a needle as thin as possible.<br>Replace the needle.<br>Use a ballpoint needle. (KN, S, J, B, U, Y, etc.)                                                        |
|                                                                                                                                                                           | 9-2) The sewing speed is too high.      |                                                                                                                                                                                   | Reduce the sewing speed. (Prevention of needle heat)                                                                                                                                 |
|                                                                                                                                                                           | 9-3) The material is excessively tense. | 3-A) The needle hole of the throat plate is too small.<br>3-B) The pressure is too high.<br>3-C) The height of the presser tooth is too high.                                     | Use a throat plate with a larger needle hole.<br>Reduce the pressure as low as possible.<br>Lower the height of the presser tooth as low as possible.                                |
|                                                                                                                                                                           | 9-4) The room humidity is too low.      |                                                                                                                                                                                   | Keep the humidity at approx. 65% to prevent needle heat, electrification, and friction.                                                                                              |
|                                                                                                                                                                           | 9-5) The feeding pitch is too small.    |                                                                                                                                                                                   | Increase the feeding pitch as large as possible.                                                                                                                                     |

| Trouble                                                                                                                                                                     | Cause (1)                                                    | Cause (2)                                                                                                                                                                                                                                                                                                                                                                                                                              | Check and corrective measures                                                                                                                                                                                                                                                                                                                                                 |
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| <p>10. Irregular stitch<br/>Thread knots appear on either side of material at random.</p>  | 10-1) The matters related to the hook are inappropriate.     | <p>1-A) Hook oil is too large or too small in amount.</p> <p>1-B) The hook is defective. (Thread catch, defective thread path, etc.)</p>                                                                                                                                                                                                                                                                                               | <p>Adjust the oil volume to the appropriate level.</p> <p>Replace the hook or modify the thread path.</p>                                                                                                                                                                                                                                                                     |
|                                                                                                                                                                             | 10-2) The bobbin or bobbin case is defective.                | <p>2-A) The bobbin thread cannot be pulled out smoothly due to poor fit between the bobbin and bobbin case.</p> <p>2-B) Defective thread winding around the bobbin winder causes the bobbin thread to be caught.</p> <p>2-C) The tension adjusting spring of the bobbin case is defective.</p> <p>2-D) The bobbin thread idles in the bobbin case.</p> <p>2-E) The bobbin is inserted into the bobbin case in the wrong direction.</p> | <p>Replace the bobbin or bobbin case.</p> <p>Correct the bobbin thread winding tension or the position of the bobbin winding tensioner.</p> <p>Replace the bobbin case.</p> <p>Adjust the tension of the idling prevention spring with reference to "3.-(4)."</p> <p>Refer to "3.-(4)." Irregular stitches are corrected by rotating the bobbin in the reverse direction.</p> |
|                                                                                                                                                                             | 10-3) The needle or bobbin thread tension is too low.        |                                                                                                                                                                                                                                                                                                                                                                                                                                        | Increase the tension of the needle or bobbin thread.                                                                                                                                                                                                                                                                                                                          |
|                                                                                                                                                                             | 10-4) The thread take-up spring is inappropriately adjusted. | <p>4-A) The stroke of the thread take-up spring is too long or too short.</p> <p>4-B) The tension of the thread take-up spring is too high or too low.</p>                                                                                                                                                                                                                                                                             | <p>Adjust the stroke of the thread take-up spring.</p> <p>Adjust the tension of the thread take-up spring.</p>                                                                                                                                                                                                                                                                |
|                                                                                                                                                                             | 10-5) The thread path is defective.                          | 5-A) The thread path is not smooth.                                                                                                                                                                                                                                                                                                                                                                                                    | Finish the thread path appropriately.                                                                                                                                                                                                                                                                                                                                         |
|                                                                                                                                                                             | To the next page                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                               |
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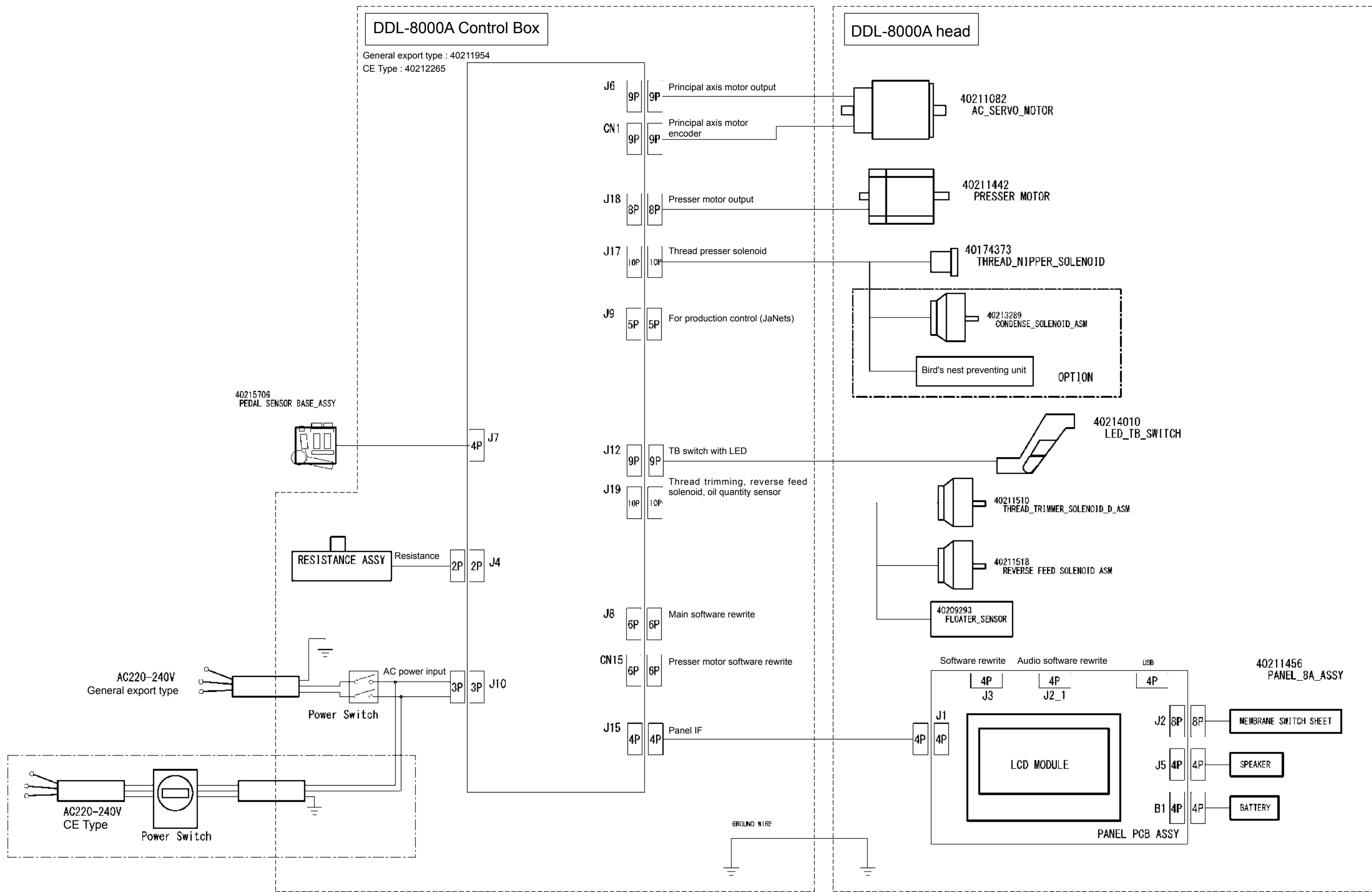
| Trouble                                                                                                                                                                             | Cause (1)                                                                                        | Cause (2)                                                                                             | Check and corrective measures                                                                                                           |
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|                                                                                                                                                                                     | From the previous page                                                                           | From the previous page                                                                                |                                                                                                                                         |
|                                                                                                                                                                                     |                                                                                                  | 5-B) The thread path has a flaw.                                                                      | Finish the thread path appropriately.                                                                                                   |
|                                                                                                                                                                                     |                                                                                                  | 5-C) The thread path has an obstacle.                                                                 | Finish the thread path appropriately.<br>Correct threading.                                                                             |
|                                                                                                                                                                                     | 10-6) The material is inappropriately stretched.                                                 | 6-A) The needle hole of the throat plate is too large.                                                | Replace the current gauge with a new one having a smaller diameter hole.                                                                |
|                                                                                                                                                                                     |                                                                                                  | 6-B) The thread relief on the back side of the presser is too large.                                  | Use a presser with a smaller thread relief on the backside or without thread relief.                                                    |
|                                                                                                                                                                                     |                                                                                                  | 6-C) The parallel level of the presser is inappropriate.                                              | Replace the presser, or loosen the presser bar holding screw and correct the needle entry and presser bend if there is no needle entry. |
|                                                                                                                                                                                     |                                                                                                  | 6-D) The presser is floating.                                                                         | Adjust the clearance between the presser bar holder and lifting plate.                                                                  |
|                                                                                                                                                                                     | 10-7) Backlash exists in the moving direction..                                                  | 7-A) Irregular stitches occur due to pitch fluctuations resulting from variation in the sewing speed. | Check whether there is a backlash and eliminate the back lash if necessary.<br>.                                                        |
|                                                                                                                                                                                     | 10-8) The stroke of the thread take-up lever is too long.                                        |                                                                                                       | Move the arm thread guide rightward to reduce the thread feeding with the thread take-up lever.                                         |
|                                                                                                                                                                                     | 10-9) No reaction is observed from the thread guide bar.                                         |                                                                                                       | Use D1113126WA0.                                                                                                                        |
| 11. The bobbin has a scratch.<br><br>The bobbin is scratched as illustrated, and a burr is left. | 11-1) When a DAB-type hook (11038650) is used, the needle may come into contact with the bobbin. |                                                                                                       | Use a hook with needle holder that is compatible with #11 or equivalent needles. 11141355 for MS, 22890404 for SH.                      |

| Trouble                                                                                    | Cause (1)                                                                            | Cause (2)                                                                                                            | Check and corrective measures                                                                                                                                                                                                                                                                                                                                                              |
|--------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 12. The bird's nest at the start of sewing is big.                                         | 12-1) The remaining length of needle thread after a thread trimming is long.         |                                                                                                                      | <p>By strengthening the first thread tension, shorten the remaining length of needle thread after a thread trimming.</p> <p>Lengthen the pitch of one needle at the start of sewing to make the needle thread to be tucked under the presser.<br/>For example, make a reverse stitch to be a condensed stitch and set the number of needles to one needle in order to enlarge a pitch.</p> |
| 13. The situation of crossing over the multi-layered section of the material is imperfect. | 13-1) The height of a feed dog is low.                                               |                                                                                                                      | At the time of passing over the multi-layered section of the material, raise a feed dog with the custom switch.                                                                                                                                                                                                                                                                            |
| 14. Needle thread breakage at the start of sewing                                          | 14-1) The needle thread presser device is put on.                                    | 1-A) Thread is cut by the needle thread caught under the presser and because needle thread presser device is put on. | <p>The needle thread is made easy to pass through by losing the presser.</p> <p>P161 is changed from 0 to 1, the presser at the start is slightly lifted to facilitate removal of needle thread. (P165: Presser lifting operation time is set to 20 or more when the thread is held.)</p>                                                                                                  |
| 15. Faulty thread trimming (The needle and bobbin threads are not trimmed.)                | 15-1) Wear of the cutting portion of a thread trimming knife or loop spreading knife |                                                                                                                      | It is replaced by a new knife.                                                                                                                                                                                                                                                                                                                                                             |
|                                                                                            | 15-2) The amount of engagement between their cutting portions is insufficient.       |                                                                                                                      | The amount of engagement between them is adjusted with an eccentric pin.                                                                                                                                                                                                                                                                                                                   |

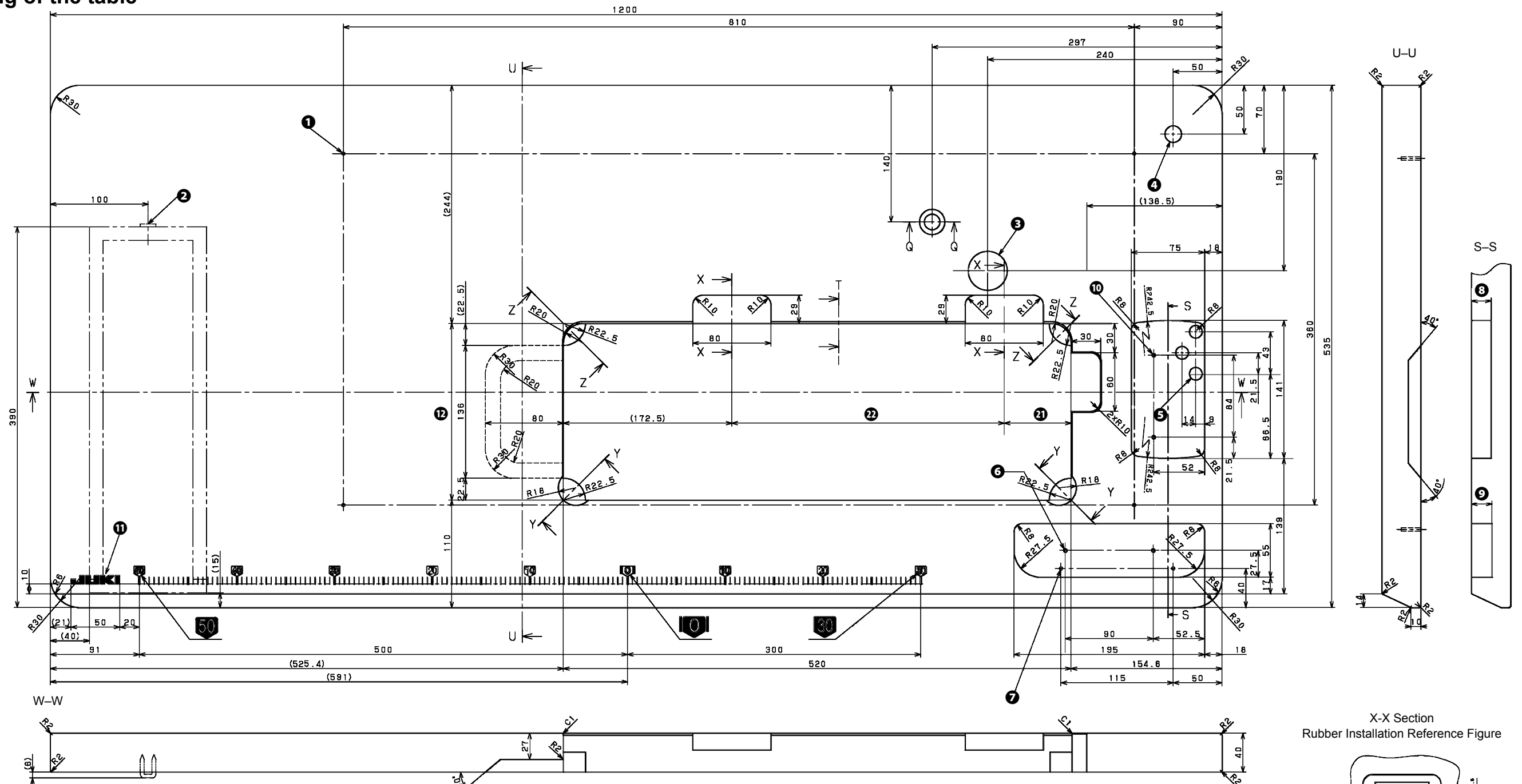
| Trouble                                                                                                  | Cause (1)                                                                            | Cause (2)                                                                | Check and corrective measures                                                                          |
|----------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| 16. Faulty thread trimming<br>(The needle thread is not trimmed.)<br>(The bobbin thread is not trimmed.) | 16-1) Wear of the cutting portion of a thread trimming knife or loop spreading knife |                                                                          | It is replaced by a new knife.                                                                         |
|                                                                                                          | 16-2) The thread loop formation is unstable.                                         | 2-A) The high-count filament type thread is being used.                  | The thread trimming cam timing is corrected by changing a maker dot from a green one to a red one.     |
| 17. Faulty thread trimming<br>(The needle thread is trimmed short.)                                      | 17-1) The strength of the thread is weak.                                            | 1-A) The high-count filament type thread or cotton thread is being used. | The rotating speed for trimming thread is lowered.                                                     |
|                                                                                                          |                                                                                      |                                                                          | The edge lines other than cutting portion of a thread trimming knife are buffed to the extent of R0.5. |

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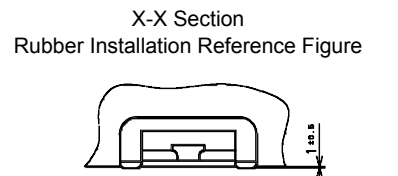
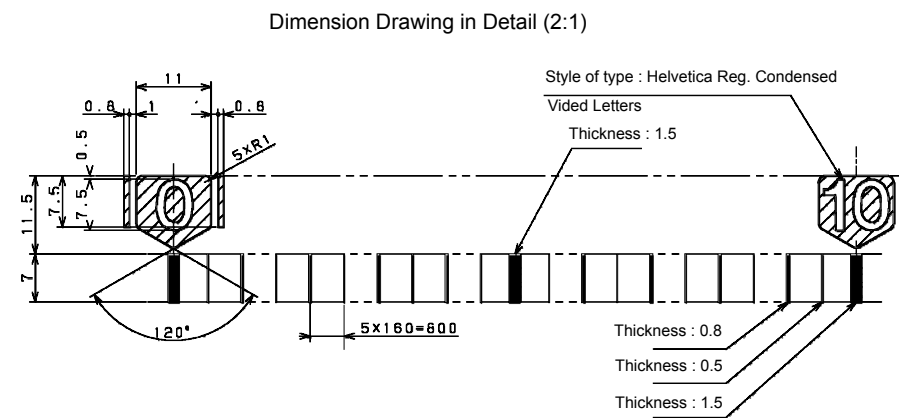
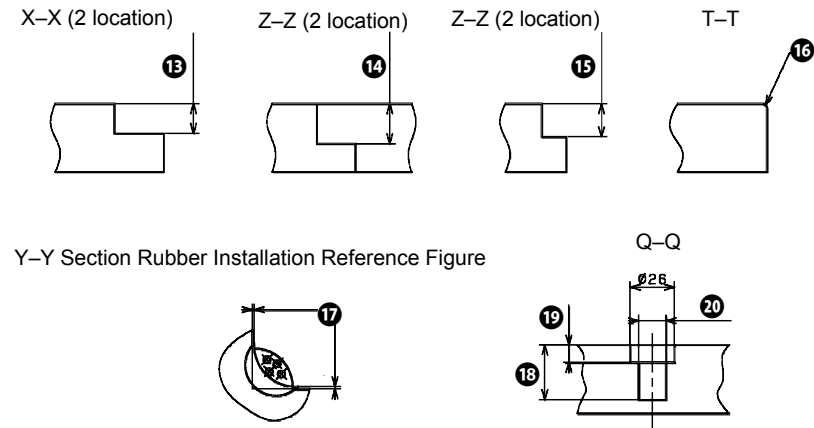
12. Block diagram



### 13. Drawing of the table



- ① 4-ø3.4, Depth at the rear side : 20  
(Drill a hole at the time of set-up).
- ② Drawer stopper installing position  
(on the under surface)
- ③ ø 40 $\pm$ 0.5, Through hole
- ④ ø 17, Through hole
- ⑤ 3 x ø 13, Through hole
- ⑥ 2 x ø 3.5, Depth : 10
- ⑦ 2 x ø 3.4 Depth at the rear side : 10  
(Drill a hole at the time of set-up).
- ⑧ 20 $\overset{+0.5}{\underset{0}{}}$
- ⑨ 21 $\overset{+0.5}{\underset{0}{}}$
- ⑩ 2 x ø 3.5, Depth : 10
- ⑪ JUKI logo type
- ⑫ 181 $\overset{0}{\underset{-1}{}}$
- ⑬ 17.5 $\pm$ 0.5
- ⑭ 23.5 $\pm$ 0.5
- ⑮ 19.5 $\pm$ 0.5
- ⑯ C1.5 to C2.5 (only for hinged section)
- ⑰ 1.2 $\pm$ 0.5
- ⑱ 32 $\pm$ 1
- ⑲ 10 $\pm$ 1
- ⑳ ø16 $\pm$ 0.5
- ㉑ 68.5 $\pm$ 1
- ㉒ 279 $\pm$ 0.5



**Part No. : 40223558**

**JUKI®**

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**\* The description covered in this engineer's manual is subject to change for improvement of the commodity without notice.**